American Aviation

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The All-Cargo Problem

THE CAB will soon decide whether the public interest requires or justifies the certification of one or more of the non-certificated all-cargo operators as regular air carriers. More simply stated, the CAB will decide whether to certificate exclusive all-cargo carriers on top of the existing scheduled air transport system.

by W. W. P.

Three years ago there was great excitement about air cargo. The short-lived air boom was just getting under way. Fleets of modified military transport planes were being readied for the new day of carrying vast amounts of freight by air. There were scores of new companies being formed.

Air cargo was—and still is to some extent—one of the hottest potatoes the CAB has had to handle. The normal issues of public convenience and necessity became highly confused and intermixed with very substantial political pressures (some of which still exist), with sympathies toward war veterans, with an abnormal demand for fast air shipments due to postwar consumer shortages, with what appeared on the surface to be a reluctance or a hesitancy by scheduled airlines to push rapidly into the cargo business, with predictions and forecasts built more on wishful thinking than on realism, and with numerous other factors.

It is probably just as well that the CAB took the course it did in short-circuiting the normal procedures of hearings by granting exemptions to the large independents. By so doing the independents have had rather a full opportunity to exploit their services. At least a record of sorts has been built up on which to determine future actions. It is now possible to eliminate emotions and wishes from the picture. Added to these factors is the narrowed field of aspirants from dozens to a handful, and only two of these have been operating transcontinentally of late.

The entire cargo potential is in clearer perspective, too. It is now clear that air cargo will have to grow slowly as did passenger and mail service. It is equally clear that air cargo has a long, long way to develop before it becomes a really major factor in U. S. transportation. In 1947, for example, the total air cargo ton miles performed by three independent and four scheduled carriers operating transcontinent-

(Turn to Page 7)

In 30th Year As KLM Head

Dr. Albert Plesman, president-director of KLM Royal Dutch Airlines, receives major credit for the high ranking position held by the Dutch in international aviation. KLM, founded by Dr. Plesman in 1919, lays claim to being the world's first airline to achieve its 30th anniversary. Dr. Plesman was honored with election to the presidency of the International Air Transport Association last September. (See page 14.)

New Features Added

Between the Lines—*A Hard Look at Military Aviation by James J. Haggerty, Jr.* 17

Extra Section—*Operations & Maintenance Slants by William D. Perreault* 27

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MANAGEMENT SALES OPERATIONS

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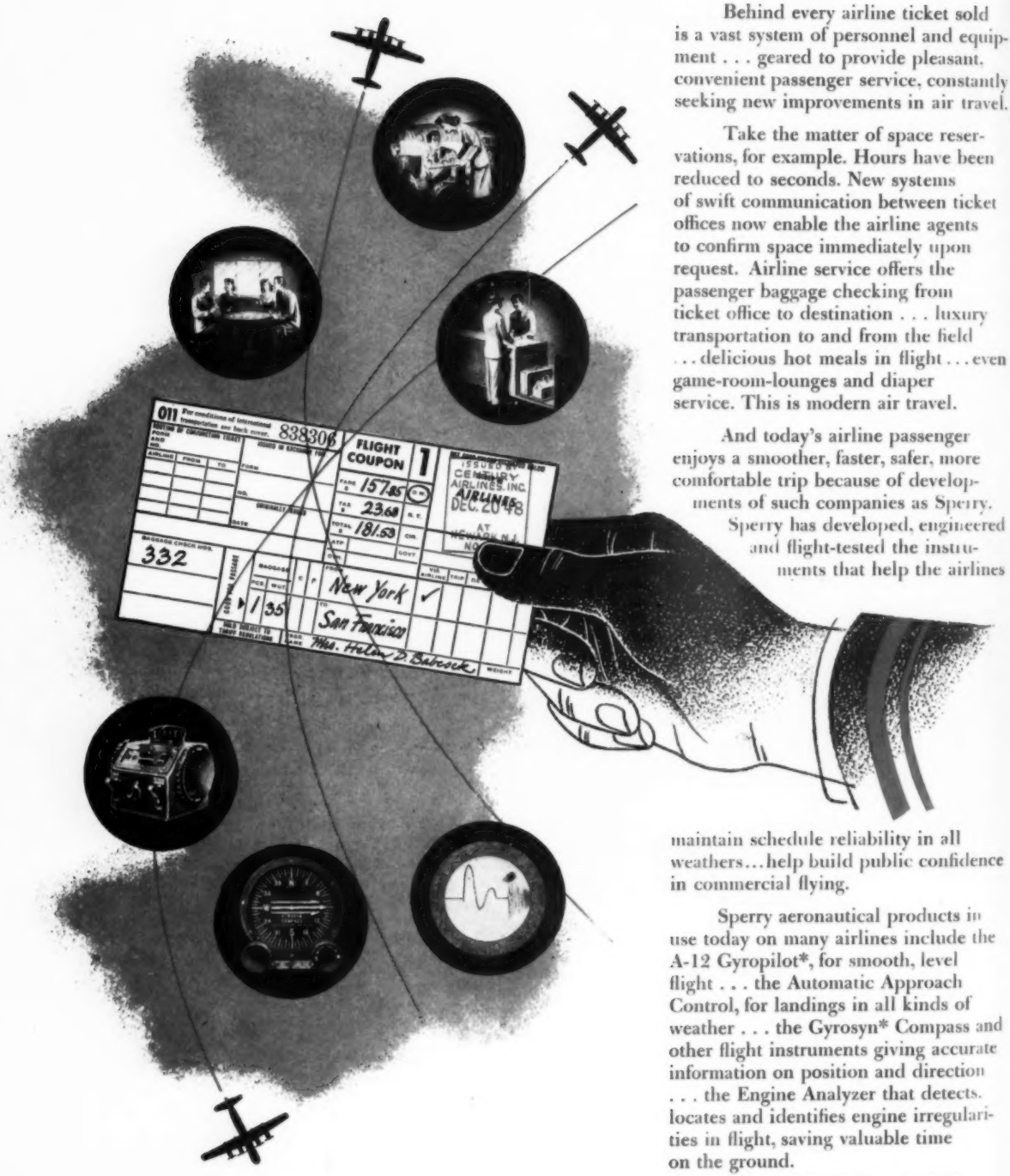

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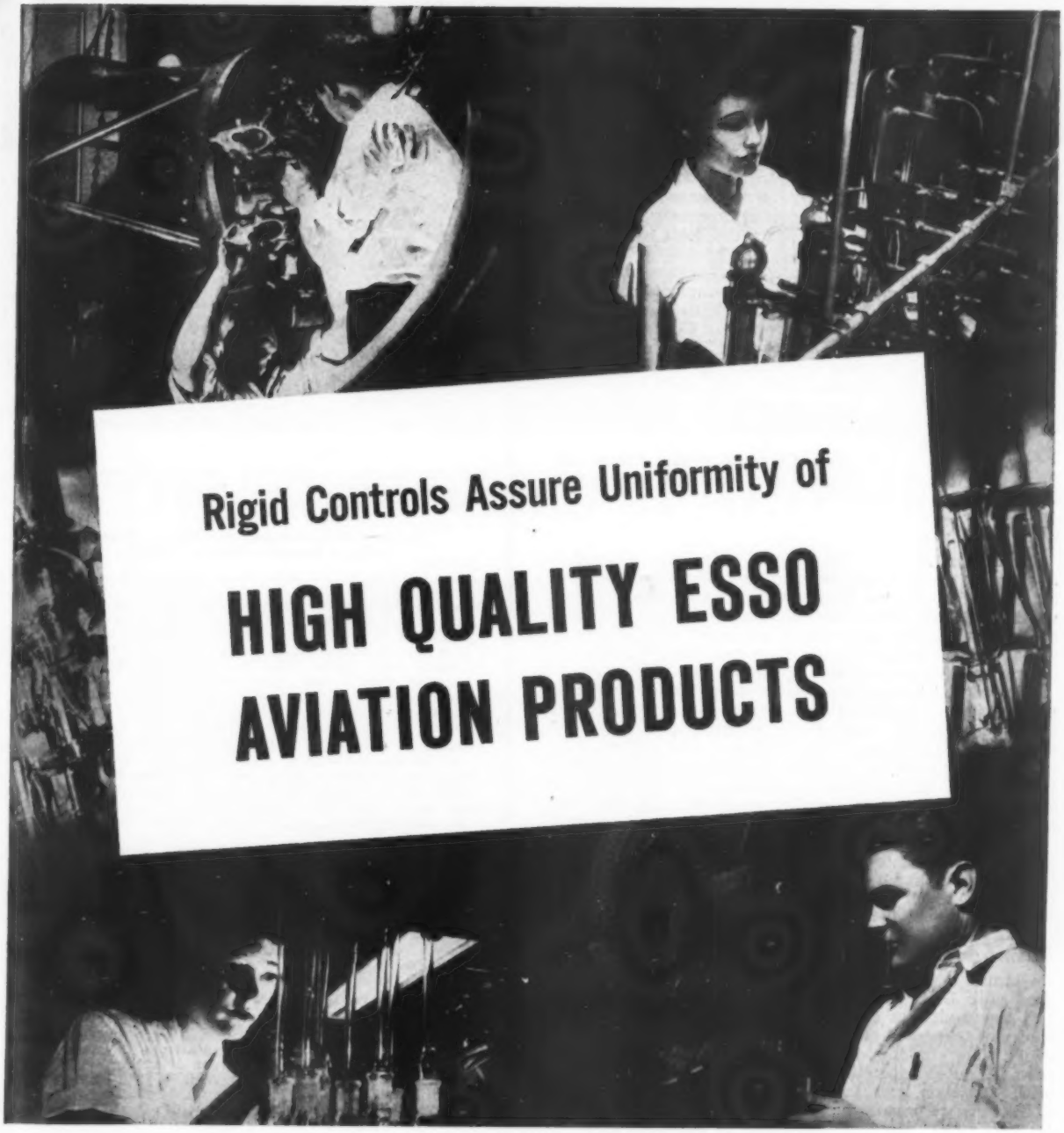

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BACKGROUND & TRENDS

Congressional Outlook

Here's aviation's outlook in the 81st Congress: Don't look for quick action on legislation. Switchover from Republican to Democratic majority means reorganization, new committee chairmen, assignments, etc. This takes time. Bills in which aviation has vital interest include repeal of transportation tax, prototype bill, 70-group Air Force bill. Latter may get quickest action because of international situation and nonpartisan nature.

A friend of aviation—and an influential one—in the Senate will be Sen. Ed. Johnson (D., Col.), chairman of Interstate and Foreign Commerce Committee. He's interested in and familiar with aviation. Rep. Alfred J. Bulwinkle (D., N. C.) will head the aviation subcommittee of the House Interstate and Foreign Commerce Committee. He has been in ill health, and his absence may slow legislation.

On Republican side, Sen. Owen Brewster (Me.) and Rep. Carl Hinshaw (Calif.) are expected to furnish a strong minority voice.

CAA Outlook

CAA Administrator Del Rentzel may have assured a mass meeting of employes that there wouldn't be any big personnel cuts, but nevertheless a committee has been visiting various offices with a view to wielding the ax. One division head was asked if he could get along with two-thirds of the people he now has. Result is uncertainty and low morale among employes.

Rentzel will have a tough time streamlining CAA and making it more efficient. One reason, as old-timers put it, is that Charlie Stanton was a pretty good administrator a few years back, but CAA mushroomed into trillions of little empires during T. P. Wright's regime. Also, Rentzel isn't getting genuine cooperation from a lot of CAA subordinates. He's having press troubles, too, and not all of them can be blamed on somebody else.

Reaction to appointment of Phillips Moore as Director of Airports is generally favorable . . . White House orders forced CAA to take action opening up Washington National Airport restaurant facilities to Negroes. CAA wanted to avoid getting in middle of segregation fight.

Airline Notes

Opinion is that there'll be a rash of **coach fare tariffs** filed with CAB by scheduled airlines in coming weeks . . . Some airlines are genuinely concerned about effect that **non-scheduled accident** at Seattle, resulting in death of 11 Yale students, may have on future college business . . . **Reconstruction Finance Corp.** is well pleased with $5 million loan it made to Western Air Lines. Value of Western's Convairs has appreciated almost 100% since loan, and RFC also has confidence in company management . . . Airlines' handling of **Christmas mail** was the best in years, and Post Office is highly complimentary . . . Look for legislation to be proposed in Congress to increase substantially the number of **air star routes** . . . **American Airlines** is moving economic regulation staff from Washington back to New York, latest in a series of moves to reduce size and activities of Washington office . . . Jan. 17 is date National Military Establishment opens bids for **transportation of military personnel** traveling on orders. Airlines expect to submit bid offering a discount, breaking railroads' stranglehold. It can mean $20 million more passenger revenue annually . . . **Legislatures in 44 states** are meeting this year. Airlines will have a number of tax fights on their hands . . . **United Air Lines,** which gave up the idea of going into helicopter operations, has sold its helicopter to United Aircraft Export Corp . . . Extensive road repairs at **LaGuardia Field** (causing no end of confusion and traffic jams) are attributed to Port of New York Authority's desire to embarrass airlines over that lease problem.

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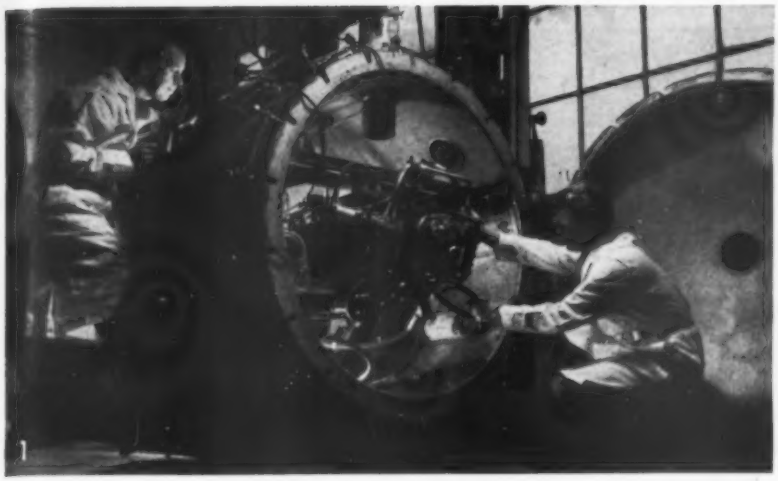

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1 AiResearch laboratory facilities include numerous atmosphere chambers where altitudes up to 70,000 feet can be simulated and temperatures dropped to −110° F. Here a cabin supercharger is being readied for a high-altitude test.

2 Many areas are restricted by the Army Air Force and Navy Bureau of Aeronautics. In this concrete blockhouse a new gas turbine for use as a self-starter for jet aircraft is being developed.

3 A new type AiResearch oil cooler for jet powered aircraft is about to be tested in a refrigerated wind tunnel at −35° F. AiResearch is currently producing 75 different heat exchanger assemblies in the oil-to-air, oil-to-fuel and air-to-air categories.

4 Here an air cooling turbine test setup is being made inside one of the many soundproof test cells. AiResearch turbines are among the most efficient ever developed.

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WORLD-WIDE AIR TANKER SERVICE — SUPPLIERS OF COMPLETE FLIGHT REFUELLING EQUIPMENT

*During December 8th and 9th, U.S. B-50 bomber flew 9,400 miles non-stop, with the aid of three mid-air refuellings.

FLIGHT REFUELLING INC.

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EDITORIAL

(CONTINUED FROM PAGE 1)

ally (comprising the bulk of all air cargo carried) amounted to 65,413,221, while the revenue ton miles performed by Class I railroads amounted to 657,877,000,000. The air services thus carried but a mere .0099% of the rail total.

In clearer perspective, too, is the composition of air cargo or air freight. Actually it is air express—the same type of shipments that have been transported by air for 15 or 20 years. The one big difference is a far greater volume. No really *new* field of air cargo has been developed since the war in terms of types of shipments. Lower rates made possible by a combination of more efficient airplanes, plus an apparent willingness to operate at below cost, made available a larger volume of the same general type of what comprises the average express shipment.

STILL ANOTHER factor of prime importance is the trend toward levelling off of air cargo during 1948. It has followed somewhat the passenger curve. There were substantial gains over 1947, but the quarterly reports for 1948 haven't varied very much. It appears that air cargo is not continuing to leap upward indefinitely and may, indeed, be levelling off at present rates or continue to gain gradually.

The independents made a distinct contribution by their early aggressive selling of air cargo and their good operating records, but it is often overlooked that many of the impressive tonnage performances were built on ruinously low rates of from six to nine cents per ton mile. The experimentation period has been as impressive by its consistent losses as it has been in piling up creditable tonnage figures. This has not been a healthy state of affairs.

Much justifiable criticism has been hurled at the scheduled airlines for their apparent reluctance to go all-out for cargo at the end of the war. There is no doubt that some management circles were finally prodded into action by the independents. On the other hand there were some airlines—notably American and United—that did have specific and well-laid plans for development of cargo and were prevented from going after it immediately because of delays in obtaining new postwar passenger planes. Older types could not be converted to cargo work until the new passenger models were in service—and this transition of equipment took much longer than anyone had anticipated.

Once the scheduled carriers had the equipment—and in some instances had their eyes opened to the volume available at current rates—the early leadership of the independents was overcome. In the first quarter of 1947 the independents performed 64½% of the grand total of cargo ton miles, but by the second quarter of 1948 the scheduled carriers had captured 53% and in the third quarter 59% of the total, almost reversing the picture in one year. There is no reason to doubt that the scheduled carriers will continue the penetration of the total tonnage carried.

EXHIBITS submitted by the independents in the recently re-opened air freight case revealed all too clearly their concentration of tonnage in a relatively few east and west coast cities. In September, 1948, 95% of the ton miles of one independent operator originated in or were destined to Los Angeles or San Francisco. Another independent showed a 72% similar concentration for the same month. The vast bulk of independent air cargo ton miles is performed between two west coast cities and six eastern cities, all such cities being served by two to six scheduled airlines with all-cargo flights.

It is no discredit to the independents, but it has a great bearing on whether they are performing an additionally useful service, that they have been "skimming the cream," so to speak, off the big cargo markets. Two transcontinental independents—Slick and Flying Tigers—each show average hauls of above 1800 miles.

There isn't an aircraft operator in the world who wouldn't choose a long-haul, few-stop service between major cities if he had a choice, whether it be for passengers, mail or cargo. But somebody has to serve the small stops and provide the short-haul service, else there is no such thing as a national transport system. Long-haul is profitable, short-haul is not. There arises, thusly, the very serious question whether it is equitable or in the national interest to have all-cargo operators skimming off the cream while the scheduled carriers, who aren't well off to start with, must perform the least profitable (and often unprofitable) local services.

The question has often been asked of late, just what is it that the independents gain by a CAB certificate that they don't now have in the way of rights. The obvious answer is that a certificate from the CAB is an official blessing or approval from a government agency—a franchise which presumably is worth something with an implied support from government. With such a certificate the all-cargo operators would have a semblance of stability in order to obtain additional public financing to expand and entrench their services.

BUT WHAT of the future? If the independents had carved out a profitable field during this experimental period, the future would indeed contain considerable hope and the additional competition might well be healthy for industry and public. But the record is not such as to inspire confidence that a profitable future awaits all-cargo operators. Certainly the competitive pressures of scheduled airlines will intensify and the operating costs of the independents are bound to increase if they establish well-financed bases and organizations.

If one or more independent operators obtain certificates, and if they are unable to operate profitably, what then? They have but two alternatives—to go broke or to seek mail, express and perhaps passenger business in an already crowded field. And the latter alternative is not a healthy outlook or prospect.

The CAB has a weighty problem to ponder. Certainly no legitimate and profitable channels of operations should be closed in this developmental period of air transport. Certainly the scheduled airlines must not be permitted to ignore their responsibilities to provide service and seek new business. But the domestic field would seem at present to be over-competitive, while opportunities in the foreign field remain much greater and more flexible, as the excellent records of Transocean and Seaboard & Western would demonstrate. We are for sound expansion, as would be every trade paper in its respective industry, but there are times (as has happened before in aviation) when too much expansion boomerangs and the public pays the deficits. All-cargo operations need a very realistic appraisal before regular air carrier certification is determined.

WAYNE W. PARRISH

Birthday Overlooked

The staff of *American Aviation Daily* was so busy with year-end news reports that it overlooked for several days its own 10th birthday on Jan. 3, 1949. The *Daily* is *the* news standard for the aviation industry, and has been for ten years. The editorial staff of the *Daily* and *American Aviation* magazine is the largest (and finest, we think) full-time editorial staff in the aviation publishing field.

Keeps ice from choking a jet's throat

ICING conditions pose a brand-new problem for jet planes. If ice forms in the narrow air intake of a jet engine, it chokes off the vital air supply. Without air, there's no combustion. And the jet engine quits cold.

To B. F. Goodrich engineers, this looked like a problem for electrically heated rubber—thin, tough rubber with a core of resistance wires. They designed an electric rubber lining for the jet's diffuser cowl, in the "throat" that funnels air to the combustion chamber (see picture above).

The resistance wires were precisely arranged to concentrate heat where it was most needed. A thermostatic control was added. Then, with electric rubber supplying the heat, the diffuser cowl was put through a series of rugged icing tests. No ice formed!

Diffuser cowls lined with B. F. Goodrich electric rubber are now in use on a new production model jet bomber.

B. F. Goodrich electric rubber is the most efficient way of getting the right amount of anti-icing heat to the right spot. It simplifies design, saves weight. It is very flexible and fits curved surfaces tightly and smoothly. And it requires little power to operate.

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CAB Awakening to Need:

Airline Outlook Improved By Mail Pay Adjustments

By DANIEL S. WENTZ II

An encouraging trend in CAB's mail rate activity showed up as 1948 came to a close. Board mail rate actions, as predicted last fall by Chairman Joseph J. O'Connell, Jr., have been considerably speeded up. What was better—for at least six airlines—was a series of orders giving the carriers sizeable increases for past periods.

The total, as shown in the adjacent table, brought these increases to nearly $6 million, and there was some possibility of further adjustments, although these were generally regarded as rather small. New rates for the future appeared to be somewhat more generous, although the Board still fell far short of what some airline officials feel is required.

Capital Airlines received December's biggest lump sum increase—an amount estimated at $3,150,000. Shortly afterward, it announced that as a result of this aid, it plans to pay interest on its outstanding debenture issue for 1947, 1948 and the first three months of 1949—a total of $861,875.

All the new rates, both temporary and permanent, should have some beneficial effect on the ability of the industry as a whole to obtain additional financing, although this effect may not become apparent for some time.

Permanent Rates Coming. More encouraging, from the airline management viewpoint, was the Board's apparent intention to speed up rate action wherever possible. Study of the trunkline mail rate tabulation printed on the following page indicates that at least half of the large carriers are or soon will be on permanent mail rates. Several of these have been challenged by the carriers themselves, and future decisions on final rates may well bring further rate increases.

Carriers on temporary rates have nearly all received increases in recent months. While the increases may not have been as much as the airlines needed, they at least represent a step in the right direction. And in the case of a temporary rate, final adjustments may always help to make up the difference between mail pay received and mail pay needed.

Significant in the rate picture is the fact that CAB is making more and more use of the sliding scale "incentive" rate for the middle-sized and smaller airlines. This type of rate, first used by CAB for feederlines, ties the amount of mail pay a carrier earns to the passenger load factor it achieves.

The mail rate goes down by a small amount for each 1% of load factor increase. But the carrier is better off because the higher load factor brings in more net revenue than the mail pay decrease takes away. Hence the "incentive" to push load factors up.

Big Four Battle. The "Big Four" situation is somewhat different. They (American, Eastern, TWA, and United) are operating on a unique type of mail rate specially invented for them by CAB's rate wizards. It works on the theory that unit costs drop as volume rises; hence mail pay decreases as the carrier's mail loads go up. But these rates are only temporary. They are regarded by several of the "Big Four" as far from adequate. And they will probably result in a tough battle when CAB goes to work on permanent rates for the four largest airlines.

Several other factors are important in the current mail rate picture. First there is TWA's Supreme Court appeal dealing with CAB's power to make retroactive increases. The Board now give certain carriers increases that are loosely called "retroactive," but they are really adjustments in rates which have not been finally fixed. TWA's appeal deals with retroactive changes in a rate that has been finally settled and accepted by the airline concerned.

The Board says it has no power to change such a rate after an airline agrees to it. TWA claims it does. And millions of dollars in mail pay ride on the answer. If the Supreme Court says TWA's view is right, CAB may be forced to hand out sizeable sums in back pay. But the experts think that if it has to do this, it may also recapture excess profits if an airline happens to make more under its mail rate than CAB originally intended.

If CAB loses its case, it will probably lose no time in asking Congress to change the law as it now stands.

Support for Cargo. Second is the policy statement announced last fall by CAB that mail pay support will be allowed for reasonable cargo operations. The Board will presumably decide what is reasonable. This brought cries of dismay from the Post Office Department, which must in the final analysis wheedle enough money from Congress to pay the entire air mail bill. But CAB refused to change its stand. Several noncertificated carriers also objected, but they too, were overruled. So for the time being, at least, an airline will find some Government help available for developing cargo operations.

Third important factor is a change in CAB's method of mail rate setting which comes from adoption of the "conference" procedure. Representatives of an airline sit down with Board officials and work out a satisfactory rate decision on the basis of mutually accepted facts. This has developed frictions and is far from satisfactory, but it does seem to have some advantages in speeding up rate machinery.

Furthermore, CAB has shown a willingness to speed up its action to help a carrier tax-wise. In one case, in which the airline and the Board couldn't agree on a particular item, CAB made it possible for the airline to receive some payment on money awarded it prior to a possibly lengthy hearing and argument on the disputed issue.

Air mail rates affecting feederlines, territorial and international carriers will be discussed in subsequent issues of AMERICAN AVIATION.

$5,878,000 for Six

Six domestic trunklines were beneficiaries of a sudden speed-up in CAB mail rate activity during the last month of 1948. Capital, Colonial, Inland, National, Northwest and Western were all earmarked by Board actions to receive *additional* mail pay for past periods. The total came to $5,878,000, broken down as follows:

Capital	3,150,000
Colonial	681,000
National	$ 233,000
Northwest	764,000
Western	975,000
Inland	75,000
Total	**$5,878,000**

Rosy Instead of Red?

Dr. Lewis C. Sorrell, director of research for the Air Transport Association, was out on a limb last week when he pointed to a possible 1948 net operating loss of only $6,735,000 for all scheduled U. S. airlines combined.

Furthermore, Dr. Sorrell said, the estimated $5,000,000 in retroactive mail pay awards announced by the Civil Aeronautics Board in December, if taken into the revenue accounts for 1948, would

eliminate most of the estimated operating deficit indicated.

If Sorrell was right, this was big news, for all the airlines combined—the domestic trunklines, the feeders and the international U. S. flag carriers—had registered a 1947 net operating deficit of $21.8 million.

His figures were predicated on combined gross operating revenues estimated at $643,541,849, up 13% from the 1947 revenues of $569,940,600, and on combined operating expenses of $650,277,263, up 10% over 1947 expenses totaling $591,741,861. The conclusions in the study were based on actual reports filed by the airlines with CAB for the first nine months of the year, plus preliminary reports for October, and estimates for November and December.

Int'l & Feeder Profits. The $6,735,000 operating loss figure was based on an estimated profit of $3,822,000 by the international and overseas airlines, an estimated profit of $1,382,000 by the feederlines, and an estimated deficit of $11,939,000 by the domestic trunklines. It was the latter figure which aroused more interest than any other in the study, for the actual net operating loss of the domestic trunks through October was a little over $7,250,000.

This meant Dr. Sorrell has estimated the November and December losses would total only $4.7 million. Considering the fact that in 1947 the net operating loss for the same two months was about $10 million, this indicated an optimistic outlook as to revenues for the last two months of 1948. Final score could not be determined until complete figures were in, probably in early spring. Meanwhile, the industry had its fingers crossed.

But whether Dr. Sorrell was right or wrong, the recent mail pay awards had made it certain that the net operating losses of the domestic airlines for 1948 would be much lower than previously expected. What the actual *net profit or loss* would be after taxes and after payments on long-term debt, etc., would be another story. An AMERICAN AVIATION compilation of figures for the first nine months of the year showed a *net operating loss* of $7.9 million and a *net loss*, after taxes and other non-operating charges, of approximately $14 million for the domestic trunklines.

RFC Report Due Feb. 1

When the Reconstruction Finance Corporation last September was commissioned by the President to make a study and recommendations on airline finances, the air transport industry had a definitely pallid look. Last fortnight the industry's complexion had assumed a much healthier aspect as a result of a better-than-usual fourth quarter and an infusion of mail pay awards, and RFC's directors sent the staff's preliminary report back for revision.

Originally intended to be ready for submission to the White House about Jan. 1, the report now is tentatively slated to go there on Feb. 1.

Summary of Domestic Trunkline Mail Rates

Carrier	Rate	Load Factor or Other	Base Weight	Daily Base Mileage	Effective From	Yield Per Revenue Mile	Remarks
BIG FOUR							
American	75c to 40c per ton mile	Rate linked to mail carried			April 7, 1948	9.43c	"Big Four" temporary rates fluctuate according to following table of daily mail ton miles. 0— 2,500 ton miles ... 75c per ton mile; 2,501— 5,000 ton miles ... 70c per ton mile; 5,001—10,000 ton miles ... 65c per ton mile; 10,001—15,000 ton miles ... 60c per ton mile; 15,001—20,000 ton miles ... 55c per ton mile; 20,001—25,000 ton miles ... 50c per ton mile; 25,001—30,000 ton miles ... 45c per ton mile; 30,000 and over ton miles ... 40c per ton mile
Eastern	75c to 40c per t-m	"			April 7, 1948	4.51c	
TWA	75c to 40c per t-m	"			Jan. 1, 1948	8.59c	
United	75c to 40c per t-m	"			Jan. 1, 1948	10.10c	Permanent rates to be set in future.
OTHERS							
Braniff	22c per airplane mile	55.99%		36,625	April 1, 1948	17.17c	Permanent rate in effect. Challenged by Braniff with petition for 30c per airplane mile Dec. 31, 1948. For each 1% rise in load factor, base rate goes down 1.25c per airplane mile to a minimum of 8.30c.
Capital	18c per airplane mile			55,000	Jan. 1, 1949	14.84c	Temporary rate.
C & S	34c per airplane mile	56.99%		20,000	Jan. 1, 1948	23.46c	Permanent sliding scale load factor rate in effect and unchallenged by C&S. For each 1% rise in load factor, base rate goes down 1.05c per airplane mile to a minimum of 8.50c.
Colonial	35c per airplane mile			12,000	May 1, 1948	34.36c	Permanent rate in effect and unchallenged by Colonial. Covers carrier's routes in U. S. and to Canada.
Continental	28.50c per airplane mile	50.99%		15,100	July 1, 1947	24.97c	Permanent rate in effect and challenged by Continental. For each 1% rise in load factor, base rate goes down 0.60c per airplane mile to a minimum of 7.50c.
Delta	24c per airplane mile	50%		35,000	April 1, 1948	18.27c	Permanent rate in effect and unchallenged. For each 1% rise in load factor, base rate goes down 1.10c per airplane mile to a minimum of 8c at a 65% load factor.
Inland	34.20c per airplane mile	50.99%		6,932	Jan. 1, 1949	27.00c	**Show cause order issued but not yet accepted by Inland.** Rate to be permanent when adopted. For each 1% rise in load factor, base rate goes down 0.80c per airplane mile to a minimum of 7.50c.
Mid-Continent	41.83c per airplane mile		300 lbs.	6,994	Jan. 1, 1942	11.28c	Oldest trunkline mail rate still in use. Permanent rate challenged by MCA. Carrier receives .03c per pound per mile for each pound in excess of 300.
National	17c per airplane mile			28,000	July 1, 1948	10.32c	Temporary rate.
Northeast	40c per airplane mile			13,000	July 1, 1948	22.88c	Temporary rate.
Northwest	14c per airplane mile			60,000	Dec. 8, 1947	8.99c	Temporary rate. Covers domestic and U. S.-Canada operations.
Western	33c per airplane mile	54.99%		16,300	Jan. 1, 1949	28.80c	**Show cause order issued but rate not yet accepted by Western.** Rate to be permanent when adopted. For each 1% rise in load factor, base rate goes down 1.40c per airplane mile to a minimum of 8.40c.

NOTE: Figures in "Yield Per Revenue Plane Mile" column were computed for month of October, 1948, by CAB, with exception of Braniff, Delta, Inland, and Western. Figures for these carriers were estimated by CAB for current rates.

Domestic Lines on Sound Basis with Long-Term Debts

By THE FINANCIAL OBSERVER

Long-term investors should find encouragement in domestic airline balance sheets, despite a third successive year of industry operating losses. There are tangible indications that the airlines have passed their low point in market appeal and that the financial trend is upward.

While 1948 will go down as a bad money year, a review of certain significant figures convinces us that the airlines have made substantial improvement in fiscal control, and that, with a few conspicuous exceptions, the financial position of the companies is not overextended.

In dealing with financial figures, it is misleading to think of the industry as a whole. The aggregate becomes distorted by unusual circumstances, such as the debt problems of Capital Airlines and TWA.

For example, we find that, considering the domestic airlines as a group, the start of 1949 found about 53% of total invested capital of $360 millions in some form of long-term debt. Excluding Capital and TWA, this percentage decreases to about 40%.

This is extremely significant. There are many reasons why the ratio of debt to equity should be appraised carefully. Most important, of course, is how much debt a company can support or safely undertake. Very seldom can a company sustain the burden of more than 50% of its capital obtained through borrowing. Some feel that 40% is the maximum safe load—a figure which applies to the domestic airline group, when Capital's and TWA's unusually heavy debts are excluded.

Depreciation Outlook. In a look at '49, depreciation costs loom as a key force shaping the profit-loss picture.

On the basis of current trends, we estimate that depreciation charges for the domestic lines this year will range between $45,000,000 and $50,000,000, approximately this way:

- $23,000,000 to $25,000,000 will be required in principal payments on company debts, together with interest payments of about $5,000,000.
- $2,000,000 will be required for preferred stock dividends, and, if we allow for 2½% yield on common stock dividends, an additional $3,000,000 would be needed for this purpose.
- $10,000,000 to $15,000,000 would thus be left for the airlines to use in building equipment replacement or improvement funds, or in accelerating the retirement of existing debts.

It would appear that if management continues to keep costs under control and CAB provides realistic mail rates, allowing the industry to do no worse than break even, the depreciation cash will be ample to carry the present debt load and provide a margin for anticipating future equipment needs.

The earning of depreciation—another way of saying making revenues equal expenses—should become the minimum goal of management and government.

One unknown element at the moment is the fact that some airlines are not yet completely equipped with postwar planes, and the financing of such craft has not yet been arranged. However, the relative situation outlined above will not be upset if this equipment is financed, by purchase or lease, in such a way that no more than 75% of depreciation charges—or its equivalent in rental payments—is required to service and retire the obligations.

Year-end balance sheets, although reflecting another year of deficit operations, should give both the lender of funds to the airlines and the stockholders reasonable assurance over security of their investments. With management keeping a closer-than-ever tab on expenditures, and if government cooperates in mail pay adjustments to pay for services rendered, 1949 should hold profitable days for the airlines.

C. R. Sees Profit—If . . .

American Airlines' board chairman, C. R. Smith, forecasts a profitable year for his company in 1949, if a reasonable level of general business is maintained and mail rates are increased to reflect postwar costs. He said the very substantial expenditures incurred in 1948 in connection with the introduction of new equipment would be greatly reduced this year.

With two-thirds of its order for 75 Convair Liners already delivered and the remaining 25 slated for delivery by late spring, Smith said American anticipates that the last of its DC-3 and DC-4 type aircraft will have been retired from operation by the end of March.

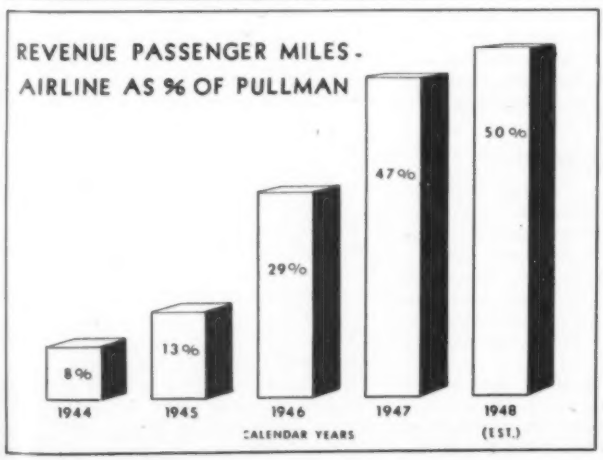
Good Year For AOA

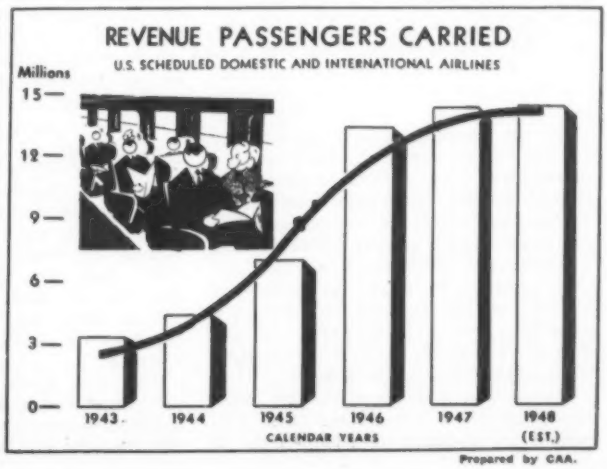
The U. S. international airlines did much better financially in 1948 than did most of the domestic carriers. One of them, American Overseas Airlines, estimated it would show a profit in excess of a million dollars for the year.

This earnings estimate was based upon a $1,145,000 profit for the first 11 months of the year before year-end adjustment for taxes and determination of final mail rates.

During the year the company flew a total of 198,000,000 passenger miles and 27,255,000 ton miles over its routes linking the U. S. with Newfoundland and ten European countries. Based on 11-months figures, it carried 21.3% of the total volume of eastbound air passenger traffic over the North Atlantic in '48, and carried 23.3% of the westbound volume.

On trans-Atlantic operations, AOA transported 71,000 passengers, an increase of 11.6% over 1947; carried 2,215,800 lbs. of cargo, an increase of 31.1%, and flew 1,161,150 lbs. of mail an increase of 16.9%. In addition, it carried 13,780 passengers, 3,000 tons of cargo and 122 tons of mail between Frankfurt and Berlin, supplementing the activities of "Operations Vittles."





10% Fare Increase Yields Only 2.4% More Revenue

When is a 10% increase in airline fares not a 10% increase? The answer to that one, it appears, is: when it's diluted by round-trip discounts and family-fare plans.

Some weeks ago W. A. Patterson, president of United Air Lines, estimated that the 10% passenger fare increase put into effect by most domestic airlines in September would be diluted to a passenger revenue increase of only 2.2%. An AMERICAN AVIATION survey of passenger revenues received shows how right he was.

For the 16 domestic trunkline carriers, the average yield per revenue passenger mile flown was 5.82c in October, first full month in which most of the fare increases had been in effect. This compares with an average yield of 5.68c per passenger mile in August, month before the first increases were started. The net revenue increase of 0.14c per passenger mile was 2.4% over the August figure—very close to the Patterson prediction.

Comparison of Yields Per Revenue Passenger Mile

(Before and After Sept. Fare Increases)

Carrier	Oct., 1948	Aug., 1948
American	5.52c	5.76c
Braniff	5.41c	5.44c
Capital	5.44c	5.59c
C&S	5.95c	5.66c
Colonial	6.40c	6.31c
Continental	5.12c	5.33c
Delta	5.72c	5.42c
Eastern	6.50c	5.90c
Inland	6.29c	5.60c
Mid-Continent	6.02c	5.78c
National	5.99c	5.98c
Northeast	6.46c	6.45c
Northwest	5.85c	5.58c
TWA	6.29c	5.62c
United	5.53c	5.57c
Western	5.82c	5.63c
Industry average	5.82c	5.68c

5 Lower, 11 Higher. Five of the 16 trunklines actually had lower passenger mile revenue yields in October than in August, despite the increase in basic fares, while yields of the other 11 carriers were higher by anywhere from less than 1% to more than 12%.

Chief among the lines showing an increased yield were: Eastern, up from 5.90c to 6.50c per revenue passenger mile flown; TWA, up from 5.62c to 6.29c; and Inland, up from 5.60c to 6.29c.

Eastern did not increase its fares to the industry level until mid-October, but a substantial part of its traffic was on Constellations and the approximately 10% surcharge on Connie flights still applied throughout October. Furthermore, Eastern's family-fare plan was not in effect that month.

A somewhat similar situation applied with respect to TWA, which did not institute its family-fare plan until Oct. 25 and did not drop its Connie surcharge until Nov. 1. Inland, with no family plan and relatively few round-trip discounts to dilute its revenues, received practically full benefit from its September fare increase.

Carriers whose passenger mile revenue yields went down after the basic fare increase went into effect were American, Braniff, Capital, Continental and United. In American's case, its fare increase had not been as high as some of the others to start with, and its average yield had been reduced by reason of round-trip sales at the 5% discount and by family plan sales, which it pioneered and put into effect Sept. 24. Also, it had dropped the surcharge on its DC-6 flights.

United also had wiped out its DC-6 surcharge when it increased fares 10% with a 5% discount for round-trips. It had no family plan until Nov. 15.

Capital had raised its fares approximately to the industry level in September, with a 5% discount for round-trips, but did not make the increase applicable on certain route segments where its DC-4's had to compete with DC-6 and Constellation flights carrying no surcharge. These naturally were some of its heaviest traffic segments. Its "sky-coach" New York-Chicago service was not inaugurated until Nov. 4, and its family-fare plan until Nov. 8.

Braniff had held out against a fare increase until Dec. 15, so it could not be expected to show an increase in October, as compared to August.

National Airlines' average yield per passenger mile was up a fraction in October, despite the fact that it did not increase its basic fare until Dec. 10. However, it had retained its surcharge on most DC-6 flights.

Spread of the family-fare plan in October and November, together with almost complete elimination of extra-fare flights, may have reduced the average passenger mile revenue yield of the 16 trunklines to the Patterson figure or below in November and December.

Family Plan Extended

American Airlines, originator of the family-fare plan, on Dec. 27 pronounced the plan an "unqualified success." (For results, see AMERICAN AVIATION, Dec. 15, 1948, page 40.) Next day, the CAB granted the applications of American and 11 other carriers for an additional three-month experimental operation of the plan.

The CAB made it plain that it did not necessarily concur in American's enthusiastic appraisal of the workings of the plan and said it approved the three-month extension in order to obtain additional data on which to base final conclusions. Most of the airlines using the plan had done so for only a month or two, and CAB thought this experience too limited for a determination of the desirability of accepting half-fares from family members accompanying a full-fare passenger on normally slack traffic days.

All the tariffs had originally been approved by the Board only until Dec. 31.

Airlines whose family-plan tariffs were extended are: American, Capital, Continental, Empire, Mid-Continent, Northeast, Northwest, Piedmont, Southwest, TWA, United, and Western. Two others, Braniff and Pioneer, put family plans into operation Jan. 1.

Eliminate Credit Deposit

The deposit now required on airline ticket charge accounts should be eliminated, in the opinion of W. A. Patterson, president of United Air Lines, and if the rest of the industry is not willing to make the change United will do it alone, he said.

"I have in mind that the entire plan must be changed because it is no longer a volume travel plan with discount," he said. "It needs an overhauling, but not until more important problems are solved. I have no specific details of change in mind at present."

Too Much Stress on Speed

Airline management has placed too much emphasis on speed of planes and should give more careful consideration to its responsibility to the public as a service utility, Graham Aldrich, of the Air Transport Association's research department, said recently.

In a speech before the American Marketing Association in Cleveland, he asked whether the industry has ever made a concerted effort to determine how much of its potential market actually demands "ever increasing speed" as a prerequisite to purchase of air transportation.

"We think not," he said. "Rather, the industry has perhaps hopefully assumed that if a trip by rail required 21 hours and a corresponding trip by air, with DC-3 equipment, required 5½ hours, a reduction of air travel to four hours, using modern and new airplanes, would attract more passengers. It is just possible that the market which places a valuation upon the differential of 21 and four hours will be the same market which places a value upon a differential of 21 and 5½ hours."

Basing his conclusions upon a study prepared for ATA members (Municipal Economic Classification—An Aid to the Marketing of Airline Services), Aldrich asserted that the airlines should develop a knowledge of the demonstrated travel habits and desires of the public.

He found that Dallas, with more or less ideal flying weather, generated fewer airline passengers in March, 1947, than Seattle "with one of the worst flight

climates in the country." Other months in the survey brought out somewhat comparable figures.

"Here, then, is tangible evidence of the failure of an air transportation characteristic to perform consistently, and the relegation of 'weather' to a 'secondary' or modifying position as a factor facilitating market analysis."

He developed a method for classifying objectively the economic differences between cities, and followed with definitions of four economic types of municipalities—marketing center, institutional, balanced, and industrial. He rated them on the basis of their retail sales per capita as bearing on the ability and likelihood of their inhabitants to use air transport.

"An airline ticket, stripped of its air-glamour, is revealed as nothing more than the acceptance by many individuals of 'another way to get from one place to another,' plus the desire to travel by air and the necessary where-with-all to do it," he said. "In short, an airline ticket sale closely resembles any other form of 'retail sale' for it is one of the myriad products and services held out to the public for consumption at retail levels."

Quick-Stops for Capital?

There was considerable speculation as to whether Capital Airlines was getting ready to switch to a quick-stop feeder-type operation on some of its short-haul routes when the company started feeding its DC-3's into the shops for conversions of a nature indicating that a feeder-type service was in the offing.

Hangar talk had it that the company's DC-3's would have their seating capacity increased from 21 to 24 through removal of the forward bulkhead, would be equipped with a built-in loading ramp, and would have a rack near the door so passengers could carry their own baggage on and off if they so desired.

Plans were, it was said, that no baggage would be carried forward, the buffet in the rear would be removed, and there would be a passageway from the cabin to the rear cargo compartment. The outside door of the latter compartment would be enlarged and would be more on "deck level," facilitating the handling of baggage and cargo.

All of this indicated that Capital planned a quick-stop operation similar to that conducted by Southwest Airways and Piedmont Airlines, among others, which would certainly speed up service and cut ground costs. With 23 ships to be converted, any change in operations procedures could not be made for several months yet. Meanwhile, Capital was keeping mum on the subject.

AAA Ready for Passengers

Getting set for a changeover from pick-up mail and property service to conventional mail, property and passenger service in the Middle Atlantic area, All American Airways this month brought in several new people, completed the reorganization of its top personnel and moved its operations headquarters and general offices from Pittsburgh and Wilmington, Del., to Washington National Airport.

Bulkhead Scenes—Scenic views from along its new passenger routes in the Middle Atlantic area are featured on the forward bulkhead in the DC-3 aircraft modified for All American Airways' proposed short-haul operations. Scene in the above photo shows the steamer "Jamestown" on the inlet between Lake Chautauqua and Jamestown, N. Y., and a Pennsylvania Dutch barn from the Lancaster area.

The company's executive lineup is as follows: Charles W. Wendt, with the company since 1938, continues as vice president-treasurer and a director; Halsey R. Bazley remains as a vice president and director; Colin H. McIntosh, formerly with American Airlines and more recently with the aviation consultant firm of Charles A. Rheinstrom, Inc., is director of operations.

McIntosh

Reno C. Gudikunst, recently associated with Capital Airlines and before that engaged in aviation procurement for military agencies for nine years, is director of supply; Richard D. Warfel continues as director of personnel; David L. Miller, traffic manager for the pick-up line, is director of sales of the new organization; and Jere V. Chain, formerly with American Overseas Airlines, is superintendent of stations.

All American had had its general offices at Wilmington since 1938 and its operations headquarters at Pittsburgh. The move to Washington, where six of its proposed new routes terminate, puts all its activities under one roof.

—LABOR—

10c More for PAA Workers

A threatened walkout of Pan American Airways ground crew workers over terms of their 1949 contract was averted on Dec. 30 when the airline and the Transport Workers Union (CIO) got together on a new contract. Chief feature was a boost in the average hourly wage from $1.49 to $1.59. Approximately 4,000 workers are affected, and the raise will boost PAA's payroll by $1,000,000 in 1949.

In addition to the pay raise, the contract provided for a reduction from 33 months to 30 months in the waiting period required before a mechanic's helper could try for upgrading.

NAL Grants Pay Raise

An across-the-board raise of 10c an hour for all classifications of maintenance workers was the principal feature of a new contract signed recently by National Airlines with the International Association of Machinists. Under the wage amendment, pay will range from $1.03 for a starting apprentice to $1.99 for lead mechanics and inspectors.

—NATIONAL DEFENSE—

MATS 'Take-Over' Plan

Should another national emergency occur, MATS would probably be forced to take over the transport aircraft of civil carriers, according to the first quarterly report of MATS to the Secretary of Defense.

Furthermore, MATS is not in favor of utilizing civil aircraft under contract carrier agreements, but prefers outright military acquisition of commercial aircraft. The report states that a study of the overall question of military operation vs. contract carrying reveals that "military operations are preferable as pro-

viding maximum military effectiveness of air transport resources."

It is MATS' belief that the commercial airlines could operate a large percentage of existing domestic and foreign routes with twin-engine aircraft, while the carriers' four-engined planes would be taken over by MATS.

In addition to supplying aircraft, commercial carriers would be asked to perform maintenance work on strategic transports in the event of an emergency, since the military establishment would not be able to handle it alone.

MATS' views on the subject are not final, however. In the event of emergency, the Air Coordinating Committee, together with the National Security Resources Board, would probably have the final word on disposition of commercial aircraft.

7 Carriers Aid Berlin Lift

Commercial air carriers of the U. S. have flown 608 flights in support of USAF and Army operations in Europe, carrying more than 3,500,000 lbs. of cargo and approximately 15,000 passengers. The three projects in which the carriers are participating are the Berlin air lift, the establishment of B-29 groups in England, and "Operation Crow," which is the transportation of dependents of military personnel to and from the European theater.

Seaboard & Western Airlines was the leading carrier up to Dec. 31, having made 158 flights in support of the three projects: 68 in support of the Berlin air lift, 55 carrying spares and equipment to the B-29 depots in England and 35 passenger flights in Operation Crow. American Overseas Airlines made a total of 157 flights, while Transocean Air Lines flew 99. Other commercial contributors include: Alaska Airlines, 86; Pan American Airways, 82; Trans World Airlines, 24; Trans-Caribbean Air Cargo Lines, 2.

The seven carriers flew a total of 263 flights in support of the Berlin air lift, carrying a total of approximately 2,500,000 lbs. of cargo and more than 3,000 passengers. None of the carriers has actually flown in the lift to Berlin, their flights consisting of freighting spare parts and other equipment to the eastern terminals of the lift. Total B-29 support is 120 flights, of which 82 carried cargo to the extent of about 1,050,000 lbs. and 38 carried a total of approximately 1,750 passengers. Commercial participation in "Crow" amounted to 225 flights, carrying more than 10,000 persons.

The old agreement under which airline pilots signing up for duty in connection with the Berlin air lift would return to airline duty when the airlines requested their return has been terminated, and the Air Force is now considering applications of airline pilots only if they are willing to sign up for three years' duty.

However, the Air Force said it would live up to the terms of the original agreement with those pilots recruited under the plan. The change of recruiting policy resulted from an easing of the urgent need for pilots.

World's First Closed Cabin Passenger Plane

KLM Royal Dutch Airlines, which marks its 30th anniversary this year, introduced the world's first closed cabin passenger aircraft—the Fokker F2 shown here—to public service in September, 1920, over the route between Amsterdam and London. First transport built by the Fokker Aircraft Co., the F2 had seating capacity of four in closed cabin, with pilot still seated in open cockpit. Plane was equipped with one water-cooled Siddeley Puma engine of 240 hp, had wing span of 53 ft. 8 in., length 38 ft. 6 in., and speed of 75 mph. The craft was credited with doing much to arouse early acceptance of air transportation by the general public.

—YEAR-END REPORT—

Progress Along 5 Fronts

Industrial flying, a comparative newcomer in the aviation field, showed a healthy advance in 1948, and commercial pilot licenses were on the increase, while issuances of other types of licenses were down, as compared to 1947. These figures, coupled with a better than 50% drop in production of lightplanes of the two-, three- and four-place types, indicated that in 1948 the trend was toward greater employment of the airplane for business purposes and general utility rather than for pleasure flying.

The year-end report of the Civil Aeronautics Administration listed four other major aviation advances last year: (1) improvement in the airline safety record; (2) substantial increases in air freight business; (3) major advances in air navigation aids; (4) a 14% increase in the number of airports.

Investment of private and government funds in airport development was a major factor in increasing the nation's civil airports from 5,258 to an estimated 6,100 during 1948, the report stated. Some 462 grant offers were made under the Federal-aid airport program during the year, involving nearly $50 million in government funds.

500,000 Pilots. The total number of licensed pilots increased last year to an estimated 500,000 from the 1947 total of 433,241, but the rate of issuance of pilot licenses was slower. Only commercial licenses were on the increase, the chief decline being in student pilot certificates, which dropped to 115,000 in '48 due chiefly to the curtailment in the GI flight training program.

Figures in the report as to 1948 airline traffic records appeared in the Jan. 1 issue of AMERICAN AVIATION, page 11.

Florman Retiring from ABA

Carl Florman, one of the world aviation pioneers and for 30 years president of ABA, Swedish Air Lines, is retiring in the very near future. His successor will be Per A. Norlin, well known in the U. S. A., who grew up in the airline business under Florman and who has been president of Scandinavian Airlines System.

Since the SAS presidency is a rotating position, speculation is now rife about that top post. It is reported that a top contender is Per Backe, a Norwegian who was co-president with Bernt Balchen of DNL, Norwegian Air Lines, until last summer. Backe is being pushed by Per Kampmann, head of DDL, Danish Air Lines; Thomas Falck, the big Bergen shipowner who has been chairman of SAS, and Norlin. Opposed is Thomas Olsen, the big Oslo steamship operator, who, along with Falck, represents Norwegian interests in SAS.

The Danes and Swedes want Backe, apparently, but the Norwegians are split among themselves.

Ryan Reappointed

Oswald Ryan, a Republican and a member of the Civil Aeronautics Board since its inception in 1938, failed to obtain reappointment for a full six-year term when his regular term expired Dec. 31, but on Jan. 1 was given a recess appointment by President Truman. The appointment is good until the end of the present session of Congress or until Congress receives and the Senate confirms the appointment of Ryan or a successor on a permanent basis.

Joseph J. O'Connell, Jr., was reappointed as chairman, and Ryan was again named vice chairman.

CAB Briefs

Routes and Stops

National Airlines' motion asking CAB to dismiss its Dismemberment Case against the carrier has been denied, while **Colonial Airlines'** motion to keep the question of price out of the proceeding was granted to the extent of amending the prehearing conference report to eliminate the issue of terms and conditions. Hearing has been moved from Jan. 24 to Feb. 14.

A Board examiner recommended that the **TWA-Delta** interchange should not be broadened to allow Detroit-New Orleans interchange trips. He said this would bring only small benefits to the public and might take business from Chicago and Southern. The examiner asked CAB to define a layover period, suggesting 45 minutes as a minimum. If CAB does this, Delta may be able to obtain schedule flexibility which it urged as one of the reasons for broadening the interchange.

Pioneer Air Lines was given a CAB exemption to allow it to omit Las Cruces, N. Mex., as a stop between Roswell and El Paso. This action relieves Pioneer of 236 extra miles of backtracking on two daily flights which CAA requirements and a condition in its certificate would otherwise make necessary.

Empire Air Lines got permission to overfly LaGrande, Oreg., on a trip which would require a night landing there. LaGrande Airport isn't suitable for night operations.

West Coast Airlines received temporary permission to serve Chehalis-Centralia, Wash., on one daily northbound flight over its local Route 77.

United Air Lines was permitted by CAB to make stops up to two hours at Chicago on all-cargo or mail-and-cargo trips, thus giving it needed extra loading and unloading time. On passenger trips, UAL's ground time at Chicago is limited to 45 minutes by a CAB rule and a restriction in its certificate.

Airport difficulties of a Mexican airline—**Aero Transportes, S. A.**,—are temporarily solved by a CAB foreign air carrier permit which allows the company to use the Rio Grande Valley International Airport at Brownsville, Texas. Aero Transportes' northern stop in Mexico would normally be Matamoros, just across the river from Brownsville, but the airport there is practically useless.

Prehearing conference on the proposed acquisition of **American Overseas Airlines** by **Pan American Airways** was slated for Jan. 14, with the question of consolidation for hearing one of the top items to be discussed.

Air **Freight Case** will be decided initially by CAB itself, thus eliminating an examiner's report.

Non-Skeds

Seaboard & Western Airlines, noncertificated international cargo carrier, asked the United States Court of Appeals for the District of Columbia to pass on its right to get into a CAB mail rate case. It tried to get into a TWA international rate case but CAB said no. S&W says as a TWA competitor it is worried lest TWA use mail pay to support uneconomic property rates unfairly competitive with S&W. The same company asked the same Court to take a look at CAB's refusal to give it an exemption to operate cargo flights more frequently than present rules allow.

CAB won a victory in the same Court against **Viking Airlines,** a non-certificated domestic passenger carrier. Viking asked the Court to reverse CAB after the Board refused to quash an enforcement case it began against Viking. The Court dismissed Viking's appeal but didn't give reasons for its action.

Enforcement

After setting up its new Office of Enforcement, CAB gave Oliver Carter, chief of the Office, authority to go to any appropriate court to get judicial enforcement of CAB rules and orders. This tightens Board enforcement.

Mail Rates

CAB gave **Western Air Lines** and **Inland Air Lines** a New Years' gift of higher permanent mail rates. Increases will bring the closely-connected companies about $1,000,000 additional pay for past periods. CAB said new rates should give WAL an annual mail income of $1,590,000; Inland an estimated annual return of $610,000.

Capital and **Colonial** received increases in their temporary mail rates. Colonial's rate was upped by about $681,000 for past periods, but the Board didn't change its current rate of 35c per airplane mile. Colonial asked for 50c per mile, but accepted CAB's proffered increase. Capital received a back pay increase which should bring it about $3,150,000 additional mail income for the period Jan. 14, 1947, through Dec. 31, 1948. It accepted CAB's proposal that as of Jan. 1 its new rate should be 18c per mile based on 55,000 daily miles. This is estimated to give Capital about $3,050,000 for 1949.

Mail rate increases proposed by CAB for **Trans World Airline's** international route are in effect. Change was estimated to give TWA about $2,512,000 additional.

Braniff asked the Board to raise its domestic mail rate to 30c per airplane mile as of Jan. 1 based on a sliding scale load factor formula. Its present rate is 22c per mile when its load factor is 55%. Braniff said flight engineer and higher gasoline costs prompted the request for an increase.

Investigation

Interlocking relationships involving the investment banking firm of **Lehman Brothers** and its connection to aviation enterprises last week became the subject of a CAB investigation. Parties to the investigation are Robert Lehman, Joseph A. Thomas, Frederick L. Ehrman (all Lehman partners), Pan American Airways Corp., Pan American Airways, Inc., Continental Air Lines and National Airlines.

CAB CALENDAR

Jan. 17—Oral argument in Services Aereos Cruzeiro do Sul, Ltda., Foreign Air Carrier Permit Case. (Docket 3336). 10 a.m., e.s.t., Room 5042, Commerce Building.

Jan. 18—Hearing in interlocking relationship proceeding involving J. C. Herbert Bryant and Capital Airlines. (Docket 3305). 10 a.m., e.s.t., Room 1011, Temporary Building No. 5. Examiner R. Vernon Radcliffe.

Jan. 24—Hearing in Milwaukee-Chicago-New York Restriction Case. (Docket 3469 et al.) 10 a. m., e.s.t., Conference Room "A," Departmental Auditorium. Postponed from Jan.. 17, Examiner Warren E. Baker.

Jan. 24—Hearing in Transcontinental & Western Air vs. Pan American Airways Saudi Arabian Complaint Case. (Docket 3264). Tentative. Postponed from Jan. 10 at request of enforcement attorney. Examiner Ralph L. Wiser.

Jan. 25—Hearing in Western Air Lines-Arizona Airways San Diego-El Centro-Yuma Route Transfer Case. (Docket 3440). Tentative. Examiner Paul N. Pfeiffer.

Jan 31—Hearing in Transcontinental & Western Air vs. Seaboard & Western Airlines Complaint Case. (Docket 3346). Postponed from Jan. 10 at request of S&W. 10 a.m., e.s.t., Conference Room "A," Departmental Auditorium. Examiner J. Earl Cox.

Jan. 31—Hearing on applications proposing Additional Service to Puerto Rico. (Docket 2123 et al.) Tentative. Postponed from Jan. 5. Examiner William J. Madden.

Aviation Calendar

Jan. 18-Feb. 11—Air Transportation Institute, American University, Washington, D. C.

Jan. 24-27—IAS 17th Annual Meeting, Hotel Astor, New York City.

Jan. 27—SAE, Metropolitan Section, fuels and lubricants mtg., Engineering Societies Bldg., New York City.

Jan. 31-Feb. 4—American Institute of Electrical Engineers winter meeting, Hotel Statler, New York.

Feb. 3—Airport Division, American Road Builders Ass'n., Washington, D. C.

Feb. 14—Dedication of Tucson, Ariz., Municipal Airport.

Mar. 3—SAE, Metropolitan Section, air transport meeting, Engineering Societies Bldg., New York City.

Mar. 10-12—American Society of Tool Engineers annual meeting, Pittsburgh.

Mar. 22-24—ATA Engineering and Maintenance Conference, Continental Hotel, Kansas City.

Apr. 3-6—American Association of Airport Executives annual meeting, Oklahoma City.

Apr. 11-13—SAE National Aeronautic & Air Transport meeting, Hotel New Yorker, N. Y.

Apr. 22-24—Second annual Oklahoma City Air Show sponsored by Chamber of Commerce.

May 2-4—Airport Operators Council annual meeting, Brown Palace Hotel, Denver.

International

Jan. 18—ICAO Council, Sixth Session, Montreal.

Jan. 19—ICAO Air Transport Committee, Montreal.

Feb. 8—ICAO Operations Division, Montreal.

Feb. 15—Inter-American Travel Congress, Buenos Aires.

Feb. 22—ICAO Airworthiness Division, Montreal.

Mar. 22—ICAO African-Indian Ocean meeting, London.

Apr. 19—ICAO NOTAM Meeting, Montreal.

Apr. —IATA Legal Committee meeting, Montreal.

May 2—IATA Executive Committee meeting, Montreal.

May 17—IATA Technical Conference, Switzerland.

The Canadair Four ... has been chosen by Canadian Pacific Air Lines to develop its passenger services in the vast North and South Pacific. British powered and Canadian built, this Aircraft has the flexibility essential to the diverse airline operations of the great Canadian Pacific System.

Canadair Limited
MONTREAL, CANADA

Between the Lines

By James J. Haggerty, Jr.

False Economy & Defense

The President has just submitted to Congress a budget for the fiscal year 1950 which we believe will knock the props out from under the air defense system of the United States.

The Defense budget calls for a total of $15,900,000,000 "obligational authority," with the Army, Navy, and Air Force getting equal shares. The Air Force will be permitted to spend $1,640,000,000 for planes, guided missiles, industrial mobilization and electronics—roughly $400,000,000 less than the current year's appropriation. Authorized airframe weight is 34,000,000 lbs.

Translated into operational terms, this means that the Air Force will be forced to cut back to 48 groups, instead of the 66 authorized now and the 70 generally accepted as the minimum necessary for adequate air defense. In terms of airframe weight, the 34,000,000 lbs. authorized is just a little more than half of the lowest estimate made by official bodies (estimates range from 60,000,000 to 110,000,000 lbs.) of the amount of airframe production required to maintain an Air Force and an aircraft industry capable of handling the country's air defense.

Apparently the President and his economic advisers believe that the time has come to cut back the nation's astronomical spending. This may be true generally, but off hand we can't think of a less opportune time to cut back defense spending, particularly in the air category. It has been said by a number of competent observers that the greatest deterrent to Russian aggression has been the increasing might of the USAF—and, in effect, we are removing that deterrent for the sake of a spurious economy, which will net us less than the cost of one week's war.

Short-Sighted Balance. The difference between the President's budget and a budget which would permit us to maintain an adequate defense force has been estimated at a little more than $3,000,000,000. This, however, is based on Defense Secretary Forrestal's policy of giving the Army and Navy a dollar for every dollar spent on the Air Force, a policy we consider short-sighted and one which stems from a practice of appeasing the military leaders, rather than from sound defense economy.

Forrestal had advocated that "balanced force"—which means that if the Air Force is to have 70 groups, the Army must have a comparable number of divisions and Navy expansion must be on a proportional scale. However, there is little argument today but that air power is the dominant factor in any war, and while the balanced force would certainly be desirable, we believe that Air Force expansion should be continued at the expense of the other two services, when funds will not permit the expansion of all three.

It has been estimated that the cost of maintaining the 66-group air force, which is an acceptable compromise for the desired 70 groups, would be about $6,000,000,000 in 1950. The President's budget gives the Air Force $4,600,000,000. On the surface, it would appear that we are saving $1,400,000,000.

However, there are two factors to be considered: 1) it will cost more to maintain each group on a pro rata basis, and 2) it will cost plenty to cut back from the 66 groups we will have on June 30 to 48.

Expensive Cutback. Consider the cost of airplanes. In fiscal 1949, the USAF spent $1,567,000,000 for 2,632 planes. This figure is only an approximation, however. It may vary upward or downward in the final analysis, since all contracts are renegotiated, and there are a number of factors to be considered in determining the final price. Now, if we cut back to 48 groups, that figure will be increased considerably, for this reason: the Air Force will order manufacturers to slow down production schedules.

For example, let us say that Boeing Airplane Co. is turning out one B-50 each week. Each plane is allocated to a given group as it comes off the production line . . . let's call them groups 48, 49 and 50. Now, suddenly, groups 49 and 50 cease to exist, so what do you do with the planes which would have gone to them—give them to No. 48? No. You inform Boeing to turn out only one B-50 every three weeks.

But Boeing still has to maintain its labor force, or at least most of it—you can't cut the labor force to one-third by slowing down to one-third on production. Therefore, the labor cost alone on each plane is going to be increased substantially. And there are a hundred other costs which would similarly be increased under slowed-down production conditions. So, in the long run, a plane which now costs $2,000,000, might cost $2,250,000 if a slow-down is necessary. And we ordered 2,632 planes this year, not to mention undelivered planes from previous years.

Eliminating those 18 groups will be costly, too. Planes which have been taken out of storage at great expense will have to be re-stored at even more expense. The cost of taking 2,310 planes out of storage during 1948 alone was $27,000,000, excluding labor which amounted to 6,400,000 man-hours. Consider, then, the cost of re-storing (which is more expensive) these same planes and more, since the authorized active inventory by the end of fiscal 1950 under the President's budget is only 9,200 planes. Also, consider the cost of deactivating fields which were just reopened recently and the hundred other costs attendant upon compressing 66 groups into 48.

Just exactly what it will cost to cut back is almost impossible to figure, since there are so many factors to be considered. Our thumbnail estimate, certainly not conclusive, would be about $400,000,000 to $500,000,000. If this is even close to correct, it would mean our net saving under the President's budget is less than $1,000,000,000, as far as the USAF is concerned.

Effect on Industry. The big factor, we feel, is the aircraft industry. The 70, 66 or 48 groups are not intended to be a war-time air force—they are only a nucleus. And the nucleus is worth little unless it can be rapidly expanded to a combat force. The President's budget endangers our chances of rapid expansion, since it will mean that we will produce only 34,000,000 lbs. of airframe where we need a minimum of 60,000,000 lbs.

This year, with $2,045,000,000 to spend for plane procurement, large companies like Martin, Curtiss-Wright and Bell received no production contracts. In fiscal 1950, with $400,000,000 less to spend, other companies may suffer a similar fate. And even those who get the contracts will not be able to develop the production lines necessary for rapid expansion.

To boil it all down, we will save perhaps a billion dollars at the outside (about the cost of two days of war) by cutting back the Air Force to 48 group instead of continuing with 66. And we will save it at the expense of reducing our Air Force to a nucleus of a nucleus, and weakening the productive capacity of the aircraft industry. We don't think it is worth it.

No More Political Censorship?

In his first report as Secretary of Defense, James V. Forrestal states that it's his desire to release as much news as possible about the military activities of his department as long as it is not injurious to the nation's security. He adds, "no type of censorship is workable or desirable."

This will be good news to reporters who have knocked their heads against a solid wall of political censorship for the past year or so. The various agencies

(Continued on next page)

Production Spotlight

Canada Wants Jet: The Canadian government is now negotiating with North American Aviation, Inc. for a license to build the Air Force's hottest jet fighter, the F-86, in Canada, probably in the De-Havilland plant in Toronto. The exact number to be built is being kept quiet, but it is certain they will not build many without a substantial budget increase. The current RCAF appropriation for procurement, modification and development of aircraft totals $41,000,000—enough to buy only about 100 F-86's on the initial order, even if they bought no other planes. Canada is also interested in the Fairchild C-82 Packet. The Air Force has given its blessing to both transactions.

Three Get 75%: *Which aircraft manufacturers are the lions in this year's Air Force procurement program? Boeing, North American and Lockheed, in that order. Boeing will receive contracts for 11,224,600 lbs. of airframe, 34.3% of the total. Dollar value is almost $532,000,000, a little more than one-third of the total. North American is second in both dollars and airframe weight (5,846,200 lbs.) while Lockheed is third in both categories. While these three companies wrapped up about 75% of the procurement, some old stand-bys went begging, notably Bell, Curtiss-Wright and Martin.*

The latter three companies, though, will get some of the gravy (although only a mild taste) under subcontract agreements with the top dog, Boeing. All three will participate in the B-47 program—Bell will build $7,575,072 worth of power packs, horizontal stabilizers and elevators; Curtiss will turn out ailerons and flaps for $1,353,424; Martin will build dorsal fins, vertical fins and rudders, for $1,081,569.

Purchase Deferred: The **Navy** planned to buy 40 Fairchild NQ (Air Force T-31) trainers this year, but a cut in the training budget killed it. Looks good for next year . . . The **Air Force** will ask Congress to restore the large bite the Berlin air lift took out of its 1949 money . . . **Lockheed's** giant R6O Constitution, largest Navy transport, may go into service on the coast-to-coast "Hotshot" run, replacing the R5D's which were pressed into Berlin lift service . . . **Convair** has hopes of selling its L-13 liaison plane to South American markets.

Only 2,250 Planes? *Unless* **Congress** *refutes the President's proposed 1950 budget, military aircraft orders will total only about 2250 planes, instead of the 3,000-plus called for in the five-year program . . .* **Douglas Aircraft Co.** *is planning immediate construction of a prototype model of its proposed modernized and modified DC-3 for use as a demonstrator . . . The* **Air Force** *has now activated 60 of its authorized 66 groups and officials are hesitant to go ahead with the remaining six, pending settlement of the battle of the budget.*

Convair Spurts: **Convair,** once behind on B-36 production, put on a spurt in the month of December, delivered 12 of the behemoths (double the previous monthly high), and is now back on schedule . . . If the Air Force gets approval to buy **48 Northrop F-89** jet all-weather fighters (the request is now on the President's desk), Northrop will build the planes in its own plant, rather than farm out the work as it did on the B-49 Flying Wing contract (Convair will build the Wings) . . . **Canada's A. V. Roe, Ltd.,** hopes to find an American market for its "hot" XC-100 jet fighter, but U. S. military officials are dubious.

Navy for Lockheed: **Lockheed,** *which has already received and has pending 1949 USAF orders for 557 F-80 jet fighters, 128 TF-80 two-seat jet trainers and 110 F-94 all-weather fighters, is due for some Navy business. The Navy plans to buy 50 P2V-4s (compound engine versions of the world's distance record holder, the Neptune patrol bomber, 16 TF-80 trainers and one Constellation . . . Lockheed's experimental Air Force fighter, the XF-90, which features a compound jet-rocket power plant, is receiving its finishing touches and should fly soon . . . Also nearing flight date is* **Republic's XF-91** *. . . Both planes have supersonic top speeds.*

Navy's Air Armada: The 'inside' columnists are complaining that the Navy will eventually operate more planes than the Air Force. 'Taint so, under present expansion plans. The Navy's top strength will be 14,500 planes, the Air Force's 20,541. The columnists are confused by the USAF's announced first line strength of 12,441 planes . . . The **Air Force** is building a 1/10 scale model of the B-49 jet Flying Wing at Wright-Patterson Air Force Base, Dayton, O. The model will be used for stall-testing by radio control.

J. J. H.

of the Department of Defense have been prone to slap security classifications on information which is worthless to our potential enemies, but might embarrass Forrestal or his staff.

For instance, the Air Force refuses to release the contract costs on its various plane contracts. Are the Russians concerned with the price of a B-50? No, but the Air Force doesn't want it known that two companies received 57% of the total money available this year. The Navy refuses to release the airframe weight of each plane for the same reason—for, since a pound of airframe costs practically the same for all plane types, one could work up an estimate of who got all the Navy's dough. There are hundreds of similar political classifications.

If Forrestal is sincere in his desire, we suggest that he eliminate the following paragraph from the regulation concerning safeguarding **military information:** "Documents, information, or materiel, the unauthorized disclosure of which, *while not endangering the national security,* would be prejudicial to the interests or prestige of the nation, any governmental activity, an individual, *or would cause administrative embarrassment,* or difficulty . . . shall be classified confidential."

AF Casualty Policy Hurts

The Air Force may change its present policy of withholding names of accident casualties until next of kin have been notified. The USAF now realizes that, in sparing the feelings of the few relatives of the casualties, the system is working a hardship on the relatives of other personnel who fear the worst until the names of the casualties are released, sometimes three or four days after a crash. An official at Air Force headquarters has admitted to Bob Sibley, aviation editor of the *Boston Traveler,* that a change in the present system is under consideration, since some officials feel it is doing more harm than good.

Oliver P. Echols, president of the Aircraft Industries Association, will move to Los Angeles, when on Feb. 1 he becomes chairman of the board of Northrop Aircraft. Leland D. Webb, who has been vice president in charge of AIA's western office at Los Angeles, will serve as acting general manager of the association until a successor to Echols has been named.

J. Carlton Ward, Jr., chairman of the board of Fairchild Engine and Airplane Corp., has been elected honorary chairman of the Export Committee of the Aircraft Industries Association. **George B. Gelly,** of Douglas Aircraft, was named chairman.

Adm. K. H. Noble, who recently retired as assistant chief of the Bureau of Ordnance for Research of the Navy, has been appointed as technical assistant for the General Tire & Rubber Co.'s California operations, including Aerojet Engineering Corp. and Marquardt Aircraft Co.

FLYING LST! GIANT NEW AIR TRANSPORT

NOW BUILDING AT DOUGLAS!

Vividly the Berlin Air Lift reveals the need for high-speed, large capacity transport aircraft. And to meet this need skilled engineers and craftsmen at Douglas are now producing 28 giant, all-purpose C-124A transports for the U. S. Air Force.

Two and one-half times the size (by weight) of the famed Douglas C-54, this huge plane will carry a 50,000-pound load, and can transport military cargo 1,200 miles and return to base without refueling. Novel built-in nose ramp, similar to the famous sea-going LSTs, facilitates handling of heavy ground force equipment such as tanks, field guns, bulldozers and fully loaded vehicles.

It is expected that the C-124A will enhance in every respect the quarter-century reputation of Douglas for leadership in the design and construction of the world's finest, fastest and most dependable air transports.

DOUGLAS AIRCRAFT COMPANY, INC., SANTA MONICA, CALIFORNIA

DOUGLAS

ADMINISTRATIVE

W. B. Langmore has resigned his position as vice president-administration and treasurer of Slick Airways to become southwest representative for the stock brokerage firm of Wood, Struthers and Co. in San Antonio. He remains on the board of directors of Slick.

Michael L. Cardman has been promoted from planning department analyst with American Overseas Airlines to assistant to the treasurer, in charge of fiscal and foreign exchange functions.

D. C. Bythell, formerly with Canadian Johns-Manville Co., Toronto, has been named director of advertising for Trans-Canada Air Lines.

Ray Neumann, public relations director for Slick Airways since its organization in 1946, has been granted a temporary leave of absence to inaugurate a public relations program for Southwest Research Institute. **Lewis J. Moorman, Jr.,** executive v.p. of the freight airline, will handle public relations matters.

George Hedman, in charge of Scandinavian-American relations for Scandinavian Airlines System since it began trans-Atlantic operations three years ago, has been appointed director of public relations, replacing **Egil Tresselt,** who has been named assistant to the president. Tresselt was formerly U. S. correspondent for the Norwegian Telegram Bureau.

Charles T. Eddins, former newspaper advertising man and more recently with the public relations department of a Dallas bank, has been appointed advertising production manager in Braniff Airways' public relations department.

Joseph R. Garzero, for the past two years labor relations supervisor for TWA in Los Angeles, has been advanced to personnel supervisor for Western Europe, with headquarters in Paris.

—OPERATIONS—MAINTENANCE—

J. A. Butcher, who joined Northwest Airlines as an apprentice in 1938 and advanced to supervisor of airframe engineering, has been named supervisor of flight engineering to succeed **A. C. Butterworth.** The latter resigned to go with Douglas Aircraft Co. **T. E. Cooper,** formerly senior aircraft engineer, has moved up to supervisor of airframe engineering.

Ray D. Kelly has been promoted from superintendent of engineering development to superintendent of technical development at United Air Lines' Denver operating base.

Richard M. Adams, an aeronautical engineer formerly with the Atlantic Division of Pan American Airways, has been transferred to Miami to take over the new position of production control superintendent in the Latin American Division.

Heads Shell Aviation—
Joseph S. Harris, assistant manager of Shell Oil's aviation department since 1942, has been appointed head of the department to succeed Dr. R. T. Goodwin, now manager of the special products department. Harris started with Shell in 1930 as a researcher in the technical products department.

F. F. Davis, formerly superintendent of engineering planning for United Air Lines, has been named engineering and maintenance assistant to **J. A. Herlihy,** vice president-operations, with headquarters in Denver.

Blake Agnew, a member of Pan American Airways' traffic department for the past six years, has been appointed station manager in Curacao, Netherlands Antilles.

Norman P. Blake
AOA European Sales Manager

Carl F. Schmidt, a member of Lockheed Aircraft Corp.'s Engineering Flight Test Division since 1941 and closely associated with the Constellation program since the early flight test days, has been appointed to the new position of airline operations engineer. He will spend a large part of his time in the field assisting airline operators in working out their operational problems.

John N. Fricker has joined the office of the president of Airborne Instruments Laboratory as director of engineering services. **Robert B. Beetham,** since 1944 assistant to the president of Collins Radio Co., also has joined the Mineola company as executive assistant to the vice president in charge of research and engineering.

TRAFFIC & SALES

J. W. Martin, administrative assistant to the vice president-traffic and former secretary to Croil Hunter, president, has been named to fill the new position of manager of cabin service with Northwest Airlines. Martin joined the company Jan. 1, 1937, in a clerical capacity.

Norman P. Blake has been appointed European sales manager for American Overseas Airlines, replacing **Jacques de Sibour,** whose new executive assignment has not been announced. Blake has been assistant to the vice president-sales.

M. James Barnes, formerly district sales manager in the Milwaukee area for Capital Airlines, has been appointed sales manager for Wisconsin Central Airlines. His experience before joining Capital included five years in traffic and sales with Trans World Airline.

S. D. Houseknecht has been appointed as southern regional manager of agencies and international sales for American Airlines, with headquarters in Dallas. He joined AA's sales department in New York in 1943.

Wallace Harmon, formerly city traffic manager for Delta in Shreveport, has been promoted to Dallas sales manager, succeeding **Woodrow Yamini,** resigned.

Osgood Willis, formerly city traffic manager in Montgomery, is now Shreveport sales manager.

Samuel T. McDermott has been named United Air Lines district passenger service manager in Honolulu, replacing **Dick Ashby,** who resigned to go with a San Francisco steel company. McDermott formerly was assistant supt. of passenger ground service at United's Denver base.

Hugh Johnson has been promoted from manager of cargo sales and development to director of cargo sales for Trans-Canada Air Lines.

Edwin R. Powers, formerly Delta traffic representative in Asheville, has been promoted to Knoxville sales manager.

PERSONNEL

Kenneth Parratt has joined the staff of PAA as manager of traffic procedures. Connected for the past two and one-half years with Charles A. Rheinstrom, Inc., as a consultant associate, Parratt formerly served 11 years with United Air Lines and organized its passenger relations department.

Larry S. Reid, a district traffic manager with Northwest Airlines since 1939, with the exception of wartime service in the Air Force and as a civilian adviser on the staff of the military director of civil aviation, has resigned his position, effective Feb. 1. He indicated he will leave the airline industry.

Robert D. Gilman, until recently district sales manager for Northeast Airlines in New Bedford, Mass., has been transferred to Boston in the same capacity.

W. G. Scott has been appointed director of traffic analysis for Trans-Canada Air Lines. He formerly served with the Bureau of Transportation Economics and the Air Transport Board at Ottawa.

R. E. Deyman, formerly general supervisor of passenger sales for TCA, has been promoted to director of passenger sales, with headquarters in Montreal.

* * *

Howard Rough, formerly head of the recently abolished office of field operations with the Civil Aeronautics Administration, has been appointed assistant CAA administrator in charge of field offices and state relations.

Frederic P. Kimball has left the aviation consultant firm of Charles A. Rheinstrom, Inc., to establish his own office at 400 Benedict Ave., Tarrytown, N. Y., as a consulting economist, specializing in the air transport field. Before joining the Rheinstrom group, Kimball was with American Airlines for five years.

R. W. Hopes, formerly director of cartage services for Air Cargo, Inc., in Washington, has been advanced to central regional manager, with headquarters in Chicago.

Lloyd R. Wilson, formerly assistant general manager of the Aircraft Owners and Pilots Association, has gone with Atlantic Aviation Corp., Teterboro, N. J., to handle sales promotion activity.

Oertel Heads API Committee

R. C. Oertel, manager of the aviation department of the Esso Standard Oil Company, has been elected chairman of the Aviation Advisory Committee of the American Petroleum Industries Committee of the American Petroleum Institute for 1949. He succeeds Warren Lowe Baker, manager of the aviation department of Socony-Vacuum Oil Co. David H. Young, aviation dept. mgr. of the Pure Oil Company, is the new vice chairman of the committee.

Airline Commentary

By ERIC BRAMLEY

THE INK was no sooner dry on the last column than we had a call from our friend Chris de Groot, Pan American-Grace Airways' well-known and able general traffic manager. We had written that it was our understanding that Panagra's first airplane, a Fairchild, was still in existence, and we added that it ought to be among planes being collected for the National Air Museum. Chris just wanted us to know that the P-1, as the plane is known, has been accepted by Smithsonian Institution and will be shipped to the storage warehouse at Park Ridge, Ill., where it will be kept

until the new museum has a home. Printed above is a picture of P-1—a small beginning for a big airline. Incidentally, we repeat—let us know if you have any material suitable for the museum.

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THE AIR LINE PILOT, official publication of the Air Line Pilots Association, carried an amusing item in its latest issue that interested us. Seems that at the recent ALPA convention, Dave Behncke, president, had the unenviable job of reporting on ALPA activities for the past two years. "President Behncke . . . spoke extemporaneously for five hours and 20 minutes, falling only 10 minutes short of his Ninth Convention five and one-half hour extemporaneous report," the publication says. "When asked why he stopped speaking after five hours and 20 minutes, only 10 minutes short of his previous record, he observed: 'In ALPA, many things happen in two years, and even a sketchy outline takes time. I didn't realize I talked that long. Anyway, there's little kick in breaking one's own record'". If five hours and 20 minutes represents a "sketchy outline," a full-dress report must be a wonder to behold.

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There's at least one fellow in United Air Lines who casts a jaundiced eye at family fares, group rates, etc. Buried down in *UAL News*, the company houseorgan, was a piece as follows: "Have you heard about the Ethiopian Air Lines 'Tribe Plan?' If the chief buys a full fare ticket, the whole tribe goes free."

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There are always a lot of snide remarks made by people about how air travel really doesn't save you any time. It wasn't so long ago that the remark was widespread: "If you have time to spare, go by air" . . . Now we want to give the other side of the picture. It was after 11 o'clock in the morning when Ray Lochiel, vice president-treasurer of Capital Airlines, was informed that he had to be in New York that day to take care of some formalities concerning a million dollars worth of government bonds which Capital holds. Hayes Dever, company secretary, was to be there too. Trouble was that they were both supposed to be back in Washington that evening for an important engagement. So they got on an airplane at 12:20, went to New York, took a taxi all the way down to Wall Street, signed the necessary papers, went back to the airport, and were back in Washington at 5:30. That's pretty good—traveling over 400 miles and transacting a million dollars worth of business in 5 hrs., 10 min.

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Is this an example of things to come? A Delta Air Lines employe in Atlanta writes: "How big can a ramp get? Flight 434 . . . was parked on the ramp, down in Position 1. A passenger for this flight walked out, took one look, walked back to the front of the building, hailed a cab and proceeded to ride down to the airplane."

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use CEE-BEE *"Improved A-3"*

- **Tests and repeated use show effect on Alclad is infinitesimal.**
- **Will not attack zinc chromate primer on trapped or open surfaces.**
- **Safe on faying surfaces. No attack! No resulting corrosion!**
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- **Free rinsing! No white residue! No streaking!—even when used with hard water.**

Cee-Bee anounces the "Improved A-3" aluminum surface brightener. It is much safer than any other similar material ever developed; does a finer job of oxide removal; of cleaning and brightening.

ABSOLUTELY SAFE Northrop Aircraft Research Laboratories have made comprehensive tests on Cee-Bee A-3. Results prove complete safety on 24ST and 75ST aluminum; no effect whatsoever on primer in faying surfaces—even under extreme conditions. Write for complete data on this test.

Aircraft manufacturers state that the damage caused by corrosion and oxidation is many times more costly than proper cleaning. The use of the Cee-Bee A-3 Bright-Cleaning methods eliminates heavy oxide and corrosion from under surfaces of wings, fuselage and stabilizers at surprisingly low cost. Find out about these Cee-Bee savings.

CHECK AND MAIL THE COUPON TODAY!

case story 63

Here's what this airline did—

1 **Submitted the "Improved A-3" to laboratory tests for corrosion and effect on primer.**
Lab. recommendation for actual service test

2 **Service test performed on one DC-3 for undersurfaces of fuselage and wings.**
Recommended for regular use for this purpose

3 **Due to satisfaction of above operation, A-3 is now used on complete DC-3's and Boeing Stratoliners.**

Estimated Savings **of $38.82 and 34 man hours on each DC-3; $55.50 and 50 man hours on each Boeing Stratoliner are reported by this operator.**

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'Mechanical Defect' Reports Prove Major Safety Factor

By William D. Perreault

The airlines have now had three months in which to determine the success of their new daily reports on mechanical defects and difficulties. Opinion is pretty much unanimous that the new system is an outstanding success. It may well prove to be a major factor in bringing an even more impressive safety record in 1949 than in the year just past.

Initiated in late September, the new system of reporting now in use by the scheduled airlines has already proved its worth, yet the CAA feels that the name with which the reports have been labeled is misleading. The wording of the regulation establishing the new procedure includes the expression "mechanical hazards" and the reports have come to be known as "hazard reports."

Both industry and the government are concerned that non-industry people might derive the wrong implication from the name combined with the report contents. The hazard report is likely to become the "daily airworthiness report" or "daily defects and difficulties report" to correct this possibility.

Before the new reporting procedure was inaugurated, the airlines' only regular reporting to the CAA was through the use of Form 478 covering interrupted flights. Every time an airplane had an interrupted flight the airlines reported to the CAA. The report covered the period from the time the airplane left the chocks until termination of flight.

Occasionally the pilot would return to the gate for a passenger from a connecting flight, because an inaccessible light had burned out, a warning light flickered, etc. These and similar difficulties, which in themselves were of no significance, had to be reported since they were interrupted flights.

Each report called for figures which were not immediately available and a certain amount of research, time and computing were necessary without apparent purpose.

Untapped Source. Furthermore, 478 covered only interrupted flights. There was no requirement that defects and difficulties found during routine inspection and unscheduled flights be reported. This is the source of the great majority of useful information but it was virtually untapped. The airlines were forwarding the more important items to ATA for notification of all the airlines, but the degree of participation in this program varied widely.

The new reporting system eliminates reports which do not produce significant information. All defects and difficulties, whether they are found in flight or on the ground, are now reported to CAA daily by the airline.

In operation, the "hazard report" is initiated in the maintenance departments of the individual airlines. There the supervisory personnel screen each day's activities, looking for items that are significant. Routine items like flat tires, inoperative landing lights, etc. are not generally reported since there is little possibility of gaining useful knowledge from the happening.

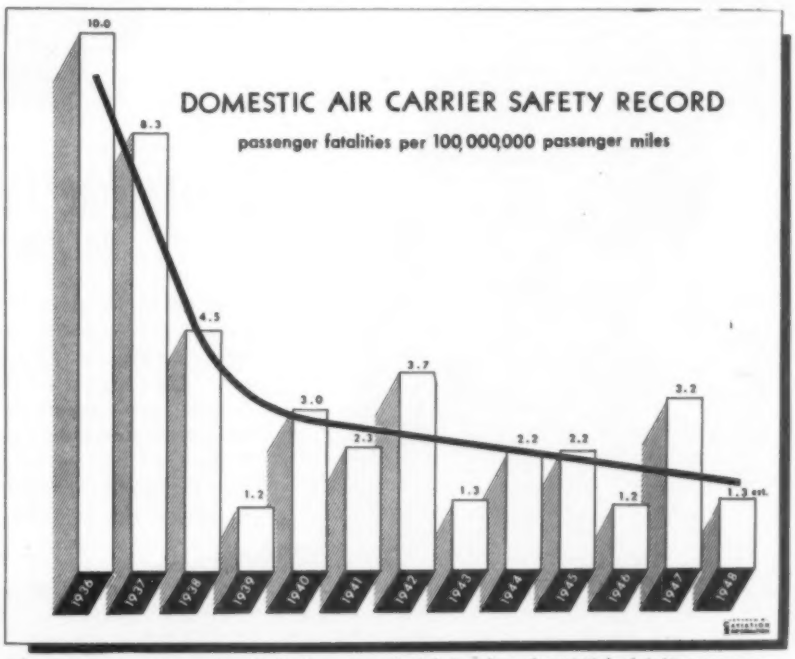
Trends Sought. Some items, not serious in themselves, may indicate a trend. For instance, a minor leak in the augmentor tube of a transport in an isolated instance would mean little. However, when compiled with reports from a number of operators it provides evidence that certain changes in the tube were necessary. As a result of the composite record modifications were made and the trouble diminished.

The items are turned over to the local agent of the CAA and transmitted by teletype to Washington headquarters. Meanwhile, if the difficulty indicates the need for immediate action locally, the agent contacts the airline in concern, double checks the adequacy of the corrective measures taken and notifies other airlines of the condition.

In Washington a CAA agent reviews each day's reports, as forwarded from all CAA regions, and the less significant items are deleted. The list made up of the more prominent difficulties are delivered to the ATA for redistribution to the airlines. ATA also supplies aircraft, engine and accessory manufacturers with copies of the lists so that they may keep informed as to difficulties with their own products.

In Washington, copies of the reports go to the CAB; the CAA administrator; CAA engineering, inspection, flight operations and other affected groups for action as dictated by the conditions.

Benefits Received. The airlines receive the composite reports from ATA and follow up on the various items reported and, in addition to this, CAA uses the information as a basis for notifying the manufacturer of inherent difficulties which should be corrected. Working with the manufacturer and the airlines, the CAA draws up mandatory inspection intervals to be used until



The Safety Trend—U. S. domestic scheduled airlines for 1948 had 1.41 passenger fatalities per 100,000,000 passenger miles flown, as compared with a fatality record of 3.2 in 1947. U. S. flag carriers operating internationally ended the year with a record of one fatal accident on scheduled flights, involving 20 fatalities, for a record of 1.06 fatalities per 100 million passenger miles. The 1947 figure was 1.08. Only four fatal accidents occurred in 1948 on the domestic airline routes, and the death toll was 83 passengers; in 1947 there were five accidents involving 199 passenger fatalities. Last year's was one of the best all-around safety records in airline history.

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such time as a corrective measure is engineered and a permanent cure provided.

Since inauguration of this program last September, CAA has notified the engine manufacturers of some 94 instances in which their products have resulted in undesirable conditions, aircraft manufacturers have been similarly notified over 18 times, and accessory manufacturers have also benefited. The information taken from these reports has resulted in the issuance of 11 mandatory notes which have or will be incorporated in the affected aircraft.

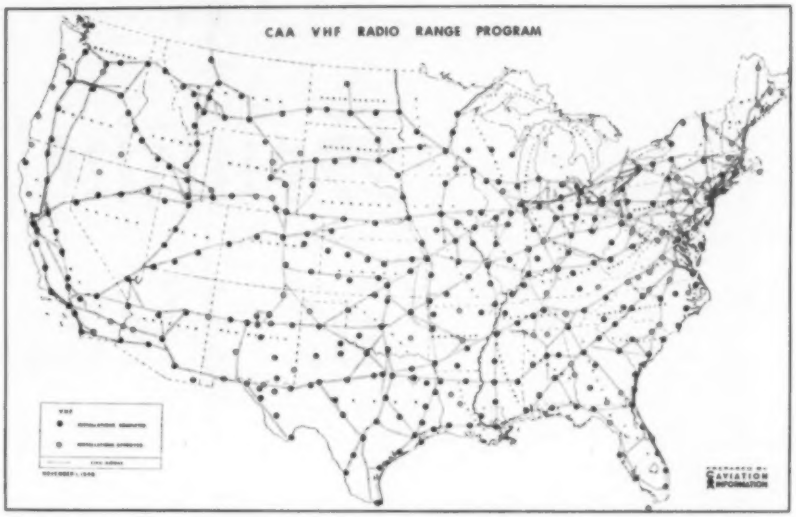
In addition to the daily reports which the airlines turn into the CAA, they also provide monthly summaries which will be handled in much the same way. In Washington, a monthly summary is compiled which shows the trouble both by airplane models and by airlines during the period. CAA is now working on the report of the second month's operation under the program.

Distribution of this monthly summary is identical to that of the daily reports. The final form of this monthly summary has not been decided upon but already the report is proving useful in showing overall trends in airplanes and airlines.

There was some feeling at start of the program that the airlines would be reluctant to submit this type information for general review but experience has shown otherwise. Everyone is concerned over the effect that these reports might have in the hands of non-industry people. This report can be compared to making a list of difficulties with your own automobile. Whether it is a new model or one with fenders, the conscientious operator could make an impressive list. The left front window doesn't go all the way down, the windshield wipers are a little out of synchronization, the front seat doesn't lock in position, or perhaps it burns a little more oil than anticipated.

If every operator turned in a report of this kind to a central agency it would add up to an impressive list which might make one wonder as to the advisability of purchasing a given make of new automobile. Yet on close analysis most of the complaints would prove to be nuisance items rather than hazards. But if all the operators indicated high oil consumption it might be possible for the manufacturer to do something about it. Possibly investigation would provide corrective measures which would eliminate the problem.

Among the scheduled airlines hundreds of reports are written every month covering mechanical hazards but on close scrutiny most of these are found to be minor items or by their very nature isolated cases. Yet in three months by diligent screening, the airlines and CAA have been able to spot numerous conditions worthy of industry wide attention. For this reason every effort is being made to continue the effective handling which is now in use.



Omni-Stations— A bird's eye view of the progress being made with CAA's omni-directional range station program is provided in the map of the U. S. shown above. Of the proposed 409 civil stations 257 are now in some stage of operation as shown by the black dots. This program, which will eventually replace the 360 four-course range stations now in use, will be supplemented by 140 ODR stations sponsored by the military services.

To date, the non-scheduled operators have not been called upon to use this new method but instead use CAA Form 1226 which is not as desirable as the newer system. CAA hopes to correct this condition sometime during 1949 but meantime the industry is able to share in the benefits of the program through the CAA inspection and modification data which have resulted from the reports.

Joint Certification Needed

Boeing Airplane Co. has submitted a proposal to civil and military aviation leaders which would provide for reciprocal approvals of military and civil cargo aircraft. Boeing feels that this procedure, if adopted, would produce economies in production and reduce the time element in delivery of this type craft to the airlines and the military as the need arises.

In an article in the Boeing house organ, W. E. Beall, v.p. of engineering and sales, outlines the difficulties which exist under the present arrangement in which CAA will not certificate an aircraft for cargo carrying even though the airplane is new and meets the military design specifications. Citing the Air Force's YC-97B, Beall indicates that this is practically a Stratocruiser but built to military standards.

"While the CAA can not approve the plane for passenger-carrying work, the Air Force will use it on important flights. Perhaps this plane will carry some of the nation's or even the world's most important people. Why then," asks Beall, "couldn't such a plane be used on commercial airlines?"

The need for such a program is further cited in relation to the production line problems with the Stratocruisers now under manufacture for the airlines and the C-97A cargo airplane which is scheduled for production in October of this year upon completion of the airline orders. If an order for as many as 15 additional ships for use by the airlines in cargo operations should be received at this time procurement difficulties would make it impossible to continue the present commercial line, which would be the logical approach, and the plane production would have to be deferred until after the military order.

Upon completion of the military C-97A's in 1950, major changes would have to be made to the production line to bring the airplanes for commercial use into compliance with CAR. This is further complicated, according to Beall, since, "The manufacturer, because of fluctuating Civil Air Regulations, often finds it difficult to have a continuity of production that will lower the cost of planes. And because of these constant changes in regulations and interpretations thereof, he can not make a firm price offer to the buyer, nor can he give a definite delivery date nor predict the performance of the aircraft accurately—all of which any buyer wants . . ."

"And unless the Boeing proposal for joint certification by CAA and the AF of transports is approved it is doubtful if there will be any large transports, passenger or cargo, developed in the future. No one can afford to pay the price of developing commercially and financing these planes. The cost of development plus the terrific expense of having the plane approved is far too great to be carried by either manufacturer or airline."

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SAFETY

CAA Challenges CAB

CAA has issued a statement charging that the recent CAB report on the DC-6 fires "did not clearly indicate all the facts." The CAB report criticized the lack of attentiveness on the part of the CAA, the manufacturer and the airline operators with respect to certain basic design discrepancies and for insufficient instruction on fuel system management. These were the factors contributing to the United Air Lines accident at Bryce Canyon and the American Airlines incident at Gallup, N. M., according to the CAB report.

While admitting that the CAA and Douglas operating manuals did not specifically prohibit the transfer of fuel, CAA's statement claimed that the manuals did outline safe operating procedures which, if followed, would have prevented the fires. The release also cites the fact that during the extensive certification tests which included flights in all aircraft attitudes and maneuvers no sign of fuel spillage was ever discovered.

Industry representatives were surprised by the public airing of the departmental differences between CAA and CAB and also by the nature of CAA's "justification" for their part in the matter. Although CAR's are designed in such a manner that they list a general statement of good practices and then the more critical points which should or should not be followed in keeping with these recommendations, the DC-6 manuals simply ignored the "don'ts" in this instance. Airline people feel that this was an omission as critical as any possible commission.

CAB decided against replying to the CAA comments, considered the incident closed.

ICAO Air Safety Body

A 12 member commission selected by the ICAO Council from nominations made by member nations of ICAO will soon take over the work of the provisional Air Navigation Committee and promote the safety of international air travel.

The committee will be responsible for drafting proposals for adoption of international standards for safety and regularity of air transport throughout the world. Standards will include accident investigation; aerodromes; air routes and ground aids; aeronautical maps and charts; aeronautical telecommunications and radio aids; airworthiness; meteorology; operating practices; personnel licensing; registration and identification of aircraft; rules of the air and air traffic control; search and rescue; and systems of dimensional units.

Nominations to the air navigation commission were being received by ICAO until Jan. 10.

Extra Section

By William D. Perreault

DOUGLAS AIRCRAFT'S proposal to modify the DC-3 series airplanes to meet the transport category requirements and provide many desirable features of a post war transport brings up the question of the life span of the aircraft fuselage. Some DC-3 airplanes have over 20,000 hours flight time and the many components making up the rest of the airplane have been replaced numerous times during the service life of the aircraft.

There is little doubt that the amount of maintenance necessary to maintain airworthiness increases with the age of the aircraft. As time passes the company service bulletins continually add new points for close inspection where cracks have never occurred in earlier years. These are reinforced immediately or as airplanes are routed through overhaul. Many maintenance people feel that this need for occasional reinforcement and similar "old age" problems are no more objectionable than the crop of "bugs" which have to be worked out of any new airplane. Although the first crop of service troubles on a transport airplane are unusually great, when the airplane has been in service a while it too will have its share of "routine maintenance" paralleling its service life.

Apparently Douglas feels that there is no age limit on fuselage life and within a few weeks definite word on the industry attitude toward the Douglas proposal will indicate how the airlines react to this.

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The policy recommendation of the Air Line Pilots Association which would permit members of ALPA to accept positions with government agencies without loss of seniority should prove desirable. Although ALPA has been represented in many government programs it might well aid government and industry to be able to call top pilot personnel into positions of responsibility in specialized positions where their background would prove valuable. It should provide a blend of airline piloting experience in agency functions without the feeling that these men are on hand for the sole purpose of handling ALPA interests. In some instances it would make it possible for these pilots to assume leadership in agencies or committees on which they have previously been used on a part time and sometimes non-voting capacity.

•

The use of Jim Ray's patented passenger loading ramp and door combination for DC-3 airplanes (which Ray assigned to Southwest Airways) is spreading rapidly with Southwest Airways, All American Airways, Colonial Airlines, Piedmont Airlines, and Capital Airlines among those in the process of adopting or now using it. It also forms a vital part of the Douglas proposal for the modification of the DC-3 airplanes to fill the post war need. Some airlines had been thinking of making the door to their own specifications but using this same basic design; however, the newly acquired patent rights will probably affect this plan. One problem posed by the door is the varying height of the bottom step from the ground with the tail wheel oleo strut at various pressures. Under certain conditions the stair can be a sizeable step from the ground and a helping hand needed for those deplaning.

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K. S. "Slim" Lindsay *has resigned his position as Sales and Service Manager with the BG Corporation to operate actively his ski lodge and summer resort hotel at Lake Tremblant, Quebec, Canada. Since joining BG 15 years ago "Slim" has made many friends in the aviation industry.* **Al Elebash,** *formerly Lindsay's assistant, has taken over as Sales and Service Manager—his 13 years with Pan Am and more recent experience with BG will prove valuable in his new job . . .* **Talbert Abrams,** *president of Abrams Instrument Co. has wandered a long distance since leaving his plant in Lansing, Mich. on a business trip. The possibilities offered by air travel are underlined by Abram's travels which have taken him into 53 countries. This modern Gulliver has a goal: to see every capital in the world. The interesting article on world travel in January issue of Reader's Digest written by Pan Am's president Juan Trippe will probably stir a good deal of this type of travel.*

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RESEARCH

Stall Proof M-H Auto Pilot

Climaxing three years of research, the Navy Bureau of Aeronautics and the Minneapolis-Honeywell Regulator Co. have announced the development of an automatic pilot which incorporates features which make the airplane virtually stall proof. Still in the research stage, the system has been installed in a number of military airplanes and has been in use for a year and a half on an experimental basis.

The present installation uses a four-foot mast on the nose of the airplane to support a vane type device for sensing the airplane's angle of attack. Signals from this unit are fed into the associated automatic pilot through an amplifier, which increases the signal strength, and finally operate a servo mechanism which controls the engine throttle setting.

The new angle of attack control makes use of the fact that the stalling point of an airplane is dependent not on its air speed but on its angle of attack. As the airplane is loaded under varying conditions the stalling speed increases, but the angle of attack at which the plane stalls remains the same. Within a given range of angles of attack, any airplane may be made to climb, glide, dive or cruise by increasing or engine decreasing power. Regardless of the attitude of the airplane, whether in a turn, climb, glide or level flight, this autopilot circuit keeps a constant relationship between the L/D ratio which prevents a stall from occurring.

To accomplish this action the cables which operate the primary control surfaces, rudder trim tab and throttles are all interconnected with servo motors which are activated by signals from the autopilot and the angle of attack sensing units. Like other autopilots of recent design the M-H system can be tuned to the localizer and glide path signals to permit completely automatic take offs and landings.

Indications are that production models of the new unit will not be available for some time since the present day components are not of final design. It is expected that the ultimate sensing device of the angle of attack indicator will be much simpler in the design than the present one and that many of the cockpit controls will be eliminated by incorporation of fixed values in the design.

One of the major advantages of the M-H autopilot and angle of attack indicating system is that it will permit extremely slow automatic approaches which will reduce the necessary landing run that will be necessary. There are strong indications that the Navy intends to use a device of this nature for automatic landings on carrier aircraft. The system will also prove valuable in routine flight by enabling the airplane to be flown at the most advantageous L/D relationship and this will insure optimum airplane performance.

In Defense of the DC-4

Pan American Airways has devoted editorial space in its official organ, The CLIPPER, to praise the performance of the DC-4 airplane and laud the part that it has played in Pan American's postwar operation. The editorial indicated that too many of the traveling public, and unfortunately some airline employes, are taking the attitude that the newer transports make the DC-4 obsolete.

Pan Am cites the fact that DC-4 airplanes brought mass transportation to Latin American countries at least two years before any other airplane would have been available and even to this day provide just as comfortable flights with dependable, trouble-free service. Pan American's DC-4 fleet for this operation represented about 25 million dollars, and block to block speeds of the DC-4 compare favorably with the newer airplanes.

The editorial cites the actual scheduled block to block time for the DC-4 from San Juan to Miami as five hours, eight minutes. The L-49 time is four hours, five minutes. From Miami to Balboa the DC-4 block to block time is 6 hours, 27 minutes; the DC-6 is four hours, 50 minutes. From San Juan to LaGuardia the DC-4 schedule is 8 hours, 54 minutes; the L-49, 6 hours 59 minutes.

Pan American's v.p. Wilbur L. Morrison, recently wrote, "I believe that everyone will agree with me that such small time differentials in medium or short range flights are not sufficient to condemn the DC-4 as a piece of 'antiquated' equipment, as has been done by some of our people and tacitly accepted by others in not refuting passengers statements to this effect."

Morrison added, "It is obvious that the U. S. Army and the two million people in the Western sector of Berlin do not think the DC-4 an 'antiquated' or obsolete aircraft! Nor, for that matter, do the domestic airlines. National, Eastern, Delta and Western Air Lines, for example, operate DC-4's indiscriminately alongside Connies and DC-6's. Chicago and Southern, PCA, Mid-Continent and others are operating no other four engine equipment except DC-4s, and most are flown at a profit.

"As a matter of fact, the DC-4 is the only airplane that can be operated today without increasing the government mail pay. LAD has been on a compensatory mail rate for quite a few years, and although strenuous efforts were made to remain on that basis, it was necessary to apply for a higher rate last April. The DC-4 continues to hold down LAD's requirements in that respect.

"I ask all our personnel to please give this fine airplane the praise it deserves," Morrison concluded.

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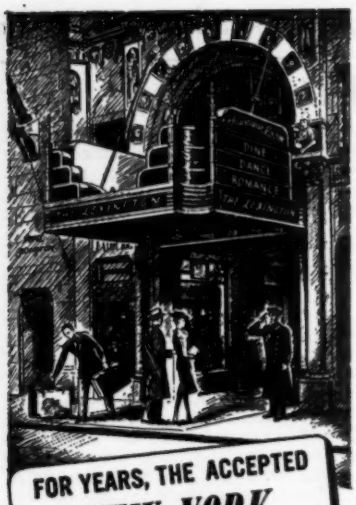

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Jet Fuel Consumption

In a lecture before the Royal United Services Institute in London, Air Commodore Banks recently stated that during the next 10 years fuel consumption of pure jet engines should gradually decrease from present value of about 1 pound per pound of thrust per hour to about .9 pounds and later perhaps to .8 while the ultimate goal is a figure of .75.

Banks did not hope for any great increase in thrust and thought that the present outputs of 5,000 pounds would remain for the time being and it would be a gradual increase to about 10,000 pounds thrust within 10 years' time.

He envisioned the greatest increases in present day engines would result from use of after-burning but emphasized that the fuel consumption represented a major penalty for power thus obtained. After-burning increases fuel consumption to the range of 2 lb./lb. th./hr. which is somewhat less than the consumption of liquid rocket or methanol injection.

Banks indicated that experience has proven that the development time for jet engines is about four years and this will obviate the possibility of tailoring the engine to suit the aircraft design as had originally been planned.

A review of information from this and other countries led Banks to the conclusion that the British are at least three years ahead of any other country and that in general the engine manufacturers were ahead of the airframe people. The latter are still faced with high drag difficulties at speeds around .8 mach.

Present indications are that there will be considerable savings in maintenance cost of jet engines. Until recently it has taken one third less mechanics to maintain the jet engines but there are signs that this will improve with a reduction to one half of the original needs.

FLIGHT AIDS

British Adopt U. S. Aids

Following a recent visit of CAA Administrator Rentzel to Britain, the United Kingdom has agreed to install an airway and traffic control system similar to that in use in the U. S. with minor modifications to meet special needs of that country. This is the four-course, low frequency range system now being replaced in the U. S. by omni-range equipment.

In addition to the three low frequency ranges now in use in England, the British will buy four new units and install a number of VHF markers. The U. S. will assist in procurement of the equipment which will probably be in use within six months.

CAA Pacific Contracts

Major improvements in air navigation facilities, communications facilities and airports in the Pacific area have been assured by CAA contracts calling for the expenditure of over $4,000,000 in this area. The bulk of the funds, $3,667,055, will be used to provide air navigation and other facilities in the Hawaiian Islands, Palmyra, Canton, Midway, Wake and Guam.

Some of these projects are already in progress in various stages of completion. Yet to be started are VHF omni-ranges at Ewa on Hilo; Upolu Point on Lihue, and Lanai and Kihei on Maui; a low frequency station at Kahuku on Oahu; communications facilities at Upolo Point, Lanai and Kailua and installation of surveillance radar at Honolulu Airport.

The balance of $640,000 has been awarded the Fisher Associates of Honolulu for paving the existing runway and installation of high intensity runway lights, construction of a new communications station and a power plant at Canton Island.

Night Flying for WCA

Wisconsin Central Airlines has installed an "H" type facility at Eau Claire Municipal Airport which it hopes will increase the number of days when WCA can fly by approximately 50%. This will also enable night flying which had not previously been possible. The round-trip flight between Minneapolis and Chicago via Green Bay, Eau Claire and intermediate stops has not been possible during the short daylight hours of the winter operation.

The facility, which cost $6,000, is not on the air continuously but is turned on and off to coincide with WCA schedules. In operation, the 100-watt station transmits a steady signal tone for 45 seconds and during the following 15-second period repeats the three letter station identification, EAU, in international code. Range is 125 miles.

Robinson Installs VHF: Robinson Airlines has completed installation of VHF communications equipment in its entire fleet of DC-3's. Included in the equipment are two Collins 51R-1 navigation receivers, one ARC R15 VHF tuneable receiver, one Wilcox 401-A transmitter system, two Bendix MN31 automatic direction finders, radio altimeter, one WE27B marker receiver and one 89B glide slope receiver. As soon as ground installations at CAA stations are completed in the area served by Robinson, the airline will use VHF navigation facilities on all flights.

LANDING AIDS

CAA Orders GE Radar

CAA has awarded a contract for 27 sets of surveillance radar costing $2,840,427 to the General Electric Co. These are the latest type units featuring remote indicating scopes which permit the antennae and related equipment to be located in the most desirable position up to two miles from the airport while

the pictorial presentation is in the control tower.

They also provide for Moving Target Identification that eliminates the "clutter" common to the production type units now in use. This latter principle has been under development by a number of manufacturers but has not been in regular use.

With earlier systems all reflectors appeared as spots on the scope and consequently airplanes on the ground at the airport, hangars, etc., left white spots on the screen which interfered with tracking the moving spot represented by the airplane. With the MTI, only items that are in motion will appear on the screen and it will be possible to follow the plane more easily and generally to a farther point than with present equipment.

The new units, installation of which will start in 1950, will be manufactured at GE's Electronic Park in Syracuse, New York.

12 Bendix GCA's for Navy

Bendix Radio Division of the Bendix Aviation Corp. has been awarded a $2,800,000 Navy contract for 12 ground control approach units. Bendix has been the sole manufacturer of GCA equipment for the Navy both during and since the war. Its equipment has been used in making 151,700 successful landings throughout the world of which 6,576 were under instrument weather conditions.

The post war units will be used to replace existing equipment at some of the 36 Navy stations now operating with GCA. Nine of the 36 units are on fields outside the United States.

——TRAINING——

Braniff Trains 26 FE's

Braniff International Airways is now training 26 flight engineers in a three-month program prior to assignment on all scheduled DC-6 flights on Feb. 28. The men chosen for training have pilot and engineering experience, and will be eligible for promotion to positions as first officers and captains.

The three-month course will be conducted by 12 instructors devoting 320 hours to ground school instruction and an additional period in supervised flight assignments over the actual routes to be flown. Braniff lists flight engineer's duties as observation of all flight equipment and instruments and rendering assistance to the captain and first officer in operation of the equipment.

4-Man Convairs: KLM is including a flight engineer's as well as a radio operator's station to allow for four-men crews in its twin-engined Convair-Liners. The station for the flight engineer is accomplished by the installation of a sort of jump seat which swings out into the cockpit midway behind the two pilots. It folds out of the way to clear passage to the pilots' seats.

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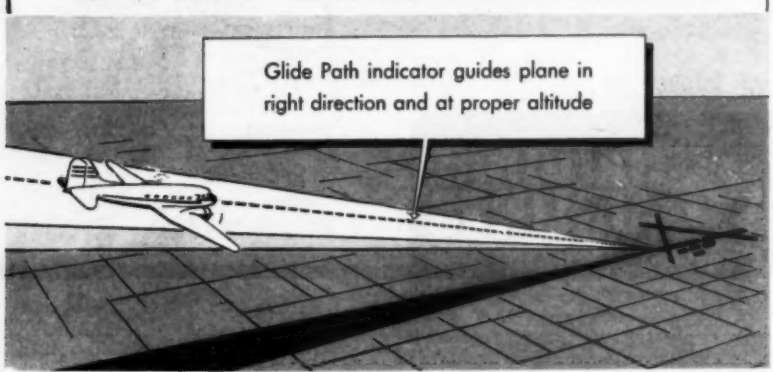

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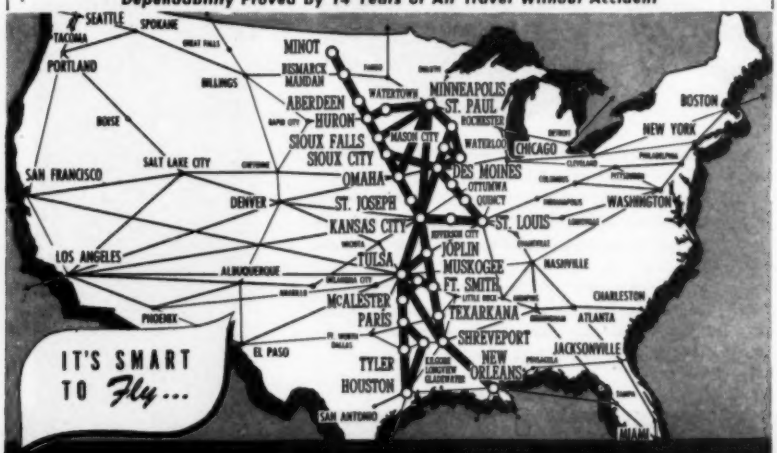

MID-CONTINENT AIRLINES

OPERATIONS-MAINTENANCE

Hughes Creates Fellowships

California Institute of Technology has announced the establishment of Howard Hughes Fellowships in Creative Aeronautics which are open to U. S. citizens meeting proper qualifications. The awards include $1500 to CALTECH to cover tuition and research; $1500 or more, depending upon qualifications, to each Fellow and a salary of not less than $2,000 to each Fellow for actual advanced development work at Hughes' Culver City aircraft plant.

Applications will be received until Feb. 15, 1949 and the awards will be announced by April 1. Those selected will begin the program July 1 with a ten-week advanced development project at the Hughes plant working with research and development engineers, and after this will be enrolled at the Institute for the regular course accompanied by part time work with the Hughes group.

Applications for the Howard Hughes Fellowships can be obtained from the Dean of Graduate Studies, California Institute of Technology, Pasadena 4, Calif.

ATA Engineering Conference: The Air Transport Association's annual engineering and maintenance conference will be held in Kansas City Mar. 22-24 at the Continental Hotel. J. F. Martin, director of maintenance and overhaul for American Airlines, will be chairman.

A list of the major problems under each classification is now being compiled by airline representatives and the composite will be submitted to the airlines and associated industries to prepare the representatives of manufacturers and suppliers for participation in the discussions.

Knots for Miles: Effective Jan. 1, 1949, the Weather Bureau started using knots as a unit of air speeds in reporting upper wind speeds, instead of mph. This will bring U. S. practice in this matter into conformance with international standards.

TECHNICAL LITERATURE

Printed Circuits: New Advances in Printed Circuits, National Bureau of Standards' miscellaneous publication M-192, is available from the Supt. of Documents, U. S. Government Printing Office, Washington 25, D. C., at 40c per copy. The 73-page booklet covers the proceedings of a symposium held last year by the Aeronautical Board's Aircraft Radio and Electronics Committee during which 22 papers were presented on the status, application and limitations of printed circuits. The scope of the booklet includes the status of printed circuits; conductive silver preparations; printed resistors; trends in military communications; vitreous-enamel dielectric products; printed electronic components on glass, plastics and other nonconductors; imprinted circuit inlays; spraying techniques; mechanization of electrical wiring; die stamped wiring; and typical commercial applications. Publication M-192 contains 18 chapters, 43 illustrations and 6 tables.

Esso Aviation Data: Esso Export Corp., 25 Broad Street, New York 4, N. Y. has published a 110-page booklet containing general

data of interest to all aviation people. This pocket-size book lists all Esso Aviation Products along with fuel and oil recommendations and a list of aviation marketers. The bulk of the publication is devoted to technical conversion tables, conversion factors, world currency, time zones, an atlas of the world, navigational charts and tables, air distance tables and an international aviation dictionary.

Pilot Certificates: CAR Part 20 covering Pilot Certificates has been reprinted with amendments and is available at 5c from the Supt. of Documents, Government Printing Office, Washington 25, D. C.

Daily Plane Utilization

International

	Sept.	Oct.
American		
4 eng. pass.	5:47	5:54
cargo	5:12	4:13
American Overseas		
2 eng. pass.	1:28	1:29
4 eng. pass.	7:40	6:33
Braniff		
4 eng. pass.	4:46	4:13
C & S		
4 eng. pass.	7:29	7:23
Colonial		
4 eng. pass.	4:59	5:03
Eastern		
4 eng. pass.	8:50	9:02
National		
4 eng. pass.	7:02	7:11
cargo	3:45	:17
Northwest		
4 eng. pass.	15:10	11:59
Panagra		
2 eng. pass.	4:20	4:05
4 eng. pass.	5:38	5:38
cargo	4:38	4:12
Pan American		
Latin American Div.		
2 eng. pass.	5:01	5:00
4 eng. pass.	8:24	8:26
cargo	4:35	3:52
Atlantic Div.		
2 eng. pass.	3:41	3:07
4 eng. pass.	7:50	7:15
cargo	3:05	2:37
Pacific Div.		
4 eng. pass.	10:25	8:55
cargo	11:10	11:54
Alaska Div.		
4 eng. pass.	9:04	7:41
cargo	7:04	6:18
TWA		
4 eng. pass.	8:55	9:19
cargo	7:05	5:50
United		
4 eng. pass.	8:10	5:46

Feederlines

All American		
Stinson SR-10-C	5:08	3:49
Beech D-18-C	3:48	5:31
Challenger		
DC-3	6:37	6:22
Empire		
DC-3	5:49	6:17
Florida		
Beechcraft D-18-C	3:49	3:31
Monarch		
DC-3	7:02	6:55
Piedmont		
DC-3	8:39	7:38
Pioneer		
DC-3	7:53	8:08
Robinson*		
DC-3	5:20	5:26
Southwest		
DC-3	6:06	5:43
Trans-Texas		
DC-3	8:18	7:00
West Coast		
DC-3	5:44	5:18
Wisconsin Central		
Lockheed 10A	5:23	4:49

* Began operations Sept. 19, 1948.

Seven new planes completed ...at a cost of $4.30!

New planes can't fly without control cable, and this manufacturer needed some —fast. He got it the same way he regularly gets many supplies and parts—by Air Express. Ordered in A.M., delivered to plant same day. 500 miles, 28 lbs., Air Express charge only $4.30. So production continued without a break.

$4.30 included pick-up and delivery at no extra charge—and receipt for shipment. All this, plus the *world's fastest shipping service.* That's Air Express—used with profit by every business.

Shipments go on all flights of Scheduled Airlines. Speeds up to 5 miles a minute—no waiting around. Direct service to over 1,000 airport cities, air-rail for 22,000 off-airline offices.

Facts on low Air Express rates:

22 lbs. of new fashions goes 700 miles for $4.73.
6-lb. carton of new jewelry line goes 1,000 miles for $2.24.
Same day delivery in both cases if you *ship early.*

Only Air Express gives you all these advantages: Special pick-up and delivery *at no extra cost. You get a receipt for every shipment* and delivery is proved by signature of consignee. One-carrier responsibility. Assured protection, too—valuation coverage up to $50 without extra charge. Practically no limitation on size or weight. For fast shipping action, phone Air Express Division, Railway Express Agency. And specify "Air Express delivery" on orders.

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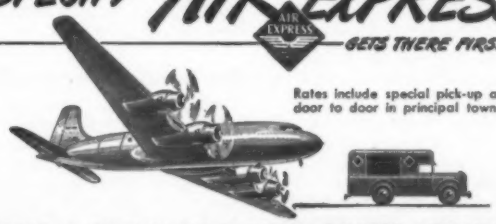

Rates include special pick-up and delivery door to door in principal towns and cities

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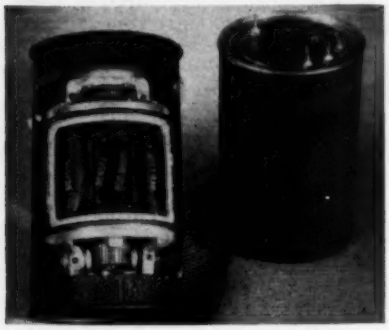
SCHEDULED AIRLINES OF THE U. S.

NEW PRODUCTS

Sealed Dynamotor

Bendix Aviation Corp., Redbank, N. J., has developed a hermetically sealed dynamotor housed in an ordinary number 2 tin can. Capable of withstanding the pressure differential to altitudes as



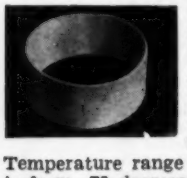
high as 200,000 feet before failing, the new unit eliminates the trouble normally experienced with electrical equipment at high altitudes when the air density reduces dielectric qualities of the air.

The new dynamotor is enclosed in the can with sea level air pressure at which time dynamotor efficiency is at its highest. A standard sealing machine with a modified chuck to accommodate the terminals is used to accomplish the sealing. In this manner sea level pressures exist throughout the operating altitude of the unit. This eliminates poor commutation, increases brush life, minimizes ripple and hash, and raises the general efficiency of the dynamotor.

Special sponge-rubber bumpers prevent end play and hermetically sealed glass terminals are provided in one end of the can. When trouble develops an ordinary can opener is used to get at the dynamotor and the unit is then reinstalled in a new can.

Silicone Connections

The Connecticut Hard Rubber Co., 407 East Street, New Haven 9, Conn. is manufacturing a new series of silicone flexible connections for use in aircraft applications where temperature ranges make it difficult to use normal materials.



Temperature range of the new material is from -75 degrees F. to 550 degrees F. This type connection is being used in hot air ducts used to route warm air to the various parts of the aircraft for deicing or comfortization. During tests the new material has been kept at a temperature of -65 degrees F for a period of 50 hours and then heated to a temperature of 400 degrees for an additional 500 hours and 450 degrees for five more hours without failure. The manufacturer will make special sizes on a custom basis.

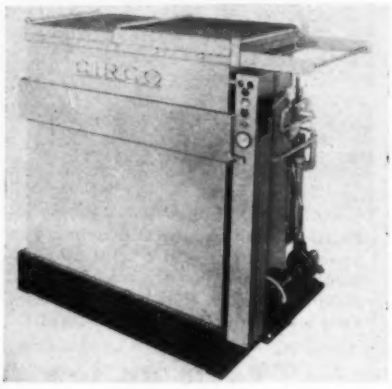
Level-Control Valve

The Parker Appliance Co., 17325 Euclid Ave., Cleveland 12, Ohio, has designed a float actuated level-control valve for controlling the flow of fuel in jet or reciprocating aircraft fuel transfer and single point fueling systems. The valve operates in a 1-50 psi. pressure range. Operating independent of pressure and flow rates, the new valve maintains uniform shut-off and reopening levels in liquid tanks over a wide range of operating conditions. The valves are built in two capacities: ¾-1" size weighing ⅔ lb. and the 1¼-2" size weighing 1 lb. The smaller valve has a ½ pound pressure drop at 10 GPM flow, 8 lb. at 20 GPM and is capable of handling flow from fuel lines thru 1½" lines. The larger valve has a .25 lb drop at 30 GPM, approximately 10 lb. at 200 gallon per minute and is especially suited for single point refueling.

The valves, which have been endurance tested for 300,000 cycles and winterized for service at —65 degrees F., are available for top or bottom filling with only a simple change of a plunger in the assembly. They are suitable for kerosene and all aviation grades of gasoline.

Automatic Degreasers

Circo Products Co. of Cleveland, Ohio, has introduced a new line of completely automatic, push button controlled vapor degreasers. The new unit, which can be used for all types of industry de-



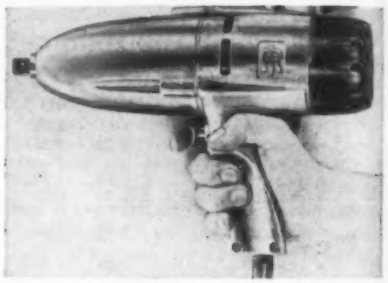
greasing, is particularly adapted to aircraft shops where cleaning is an important function prior to overhaul or to facilitate inspection. The Circo degreasers feature stainless steel protection; automatic fool-proof operating controls-built-in reservoir tank for liquid solvent flushing and for automatically restoring solvent to the proper operating level; a large readily removable, leak-proof clean out door to facilitate cleaning; a minimum of moving parts; indicating lights used to warn the operator of given conditions and increased capacity.

Brushless Generator

Westinghouse Electric Corp., 306 Fourth Ave., Pittsburgh 30, Pa. has announced a new brushless generator especially suited to high altitude flight. The generator is a three-phase unit rated at 400 volt-amperes continuous load at 120-208 volts. Speed range is 4500 to 12,000 rpm with a frequency output from 300 to 800 cycles. Employing the inductor principle, the generator uses two stator windings, one to furnish d-c excitation and the other to provide the a-c output. The rotor is a solid steel unit with eight pole faces but minus windings.

Electric Impact Tool

Ingersoll-Rand Co., 11 Broadway, New York, N. Y. announces a new, heavy duty electric impact tool for use in aviation repair and general maintenance work. Known as the 8U model, the new de-



sign enables the tool to be used to run or remove nuts up to ⅝" thread size; drive and remove studs; extract broken cap screws and studs; apply and remove machine screws of all kinds; run wire brushes; drill brick, metal, and masonary; tap; and ream.

The 8U model is 12-⅛" long; weighs 9 lbs., 13 ounces; can be operated on direct or alternating current at 110 or 220 volts.

Micrometer Stop Unit

Aero Tool Company, 6930 Avalon Blvd., Los Angeles 3, Calif., is marketing a micrometer stop unit for control of various machine operations such as taper shank countersink cutters and counterbore cutters. The unit makes it possible to select the depth of cut within .001" without removing the stop from the machine or drill press for adjustment. In this manner it is possible to assure flush screws, rivets and other flush fastenings. The taper shank assures concentricity of cutter with spindle and the ¼" shank of the stop unit permits its use in stationary and portable tools.

Cutter availability is as follows: Countersink cutters in 7/16" and ⅝" diameters with integral pilots from 3/32" to ¼" in increments of 1/32"; also available from interchangeable 3/32" and 3/16" shank pilots. Pilot sizes from 3/32" to 5/16".

Snap-Lock Plier-Wrench

Seymour Smith & Son, Inc., Oakville, Conn., is offering a "snap-lock" plier-wrench featuring three major advantages. These are an indicator scale, embossed on the upper handle and showing the extent of the jaw opening as the adjustment screw is turned, an improved swivel jaw with a wider arc permitting use on irregular shaped pieces, and a new lock release, operated by the touch of a finger, which opens the jaws immediately. The design of the plier-wrench, which is strongly reinforced at extra wear points, permits it to be used as a vise or clamp. "Snap-Lock" plier-wrenches are available in 7" and 10" sizes.

Big Airports Favored for '49 Funds

It looks as though big airports will be made bigger and better in 1949, while some towns seeking Federal funds with which to build small airports may go empty-handed.

Here's the official Civil Aeronautics Administration line on airport construction and improvement in 1949, as laid down last week by Administrator D. W. Rentzel:

For some time the CAA has been committed to a policy of close integration of the airport construction program with the all-weather air navigation, landing aids and traffic control program adopted by the radio Technical Commission for Aeronautics and the Congressional Aviation Policy Board. This policy will be continued in 1949, with a substantial percentage of available Federal-aid airport funds going to locations designated in the RTCA program.

This will not mean the construction of numbers of new airports, but rather an attempt to improve existing large airports to the point where regularity of schedules and an even flow of air traffic will result from a combination of an improved navigation and traffic control system and airports capable of handling the traffic.

Smaller fields will not be left out of the picture entirely, but first consideration will be given to the larger airports from the standpoint of benefits to a sound air transport industry, civil aviation as a whole, and national security.

Up to Congress. Only Congress can answer the question as to how much money will be made available to CAA for the airport program in 1949. However, there already is appropriated and available approximately $35,000,000 earmarked for airport construction or improvement at about 500 locations between now and the end of the current fiscal year on June 30, 1949. It is expected that sponsoring communities will qualify for most if not all of this money by the end of the fiscal year.

With a heavy backlog of demands for Federal airport grants, CAA has adopted a policy of withdrawing funds from communities that have not taken some positive action toward readying a project application within 90 days after a tentative allocation of funds has been made.

As of Jan. 1, CAA had been given three Federal-aid airport appropriations totaling $117,500,000, of which $106,500,000 was for use on airports in the continental U. S. and the remainder for airports in Alaska, Hawaii and Puerto Rico. An estimated $65,000,000 of these available funds had been spent for airport construction or improvement at 530 locations.

Grant offers during 1948 totaled $48,702,276 in Federal funds, including $9,726,946 to be applied toward construction of 149 new airports, mostly small ones. Of the 462 grants approved during the year, 87 were for very small or Class I fields, 123 for Class II airports, 114 for Class III facilities, and 138 for Class IV or larger airports. Approximately 175 projects were completed during the year.

Moore CAA Airport Head

Phillips Moore, former director of the airport engineering section of CAA, on Dec. 30 was named director of the Office of Airports. Edgar N. Smith, who had been acting director since the transfer of H. A. Hook to Alaska, became deputy director. Paul C. Stafford, formerly in the Airport Engineering Service, was made chief of the Airport Planning Service, and Phillip Hahn, formerly in the Airport Engineering Division in the Sixth Region, took over Moore's former position in Washington.

Moore

Boost for Cross-Wind Gear

In line with the cross-wind landing gear program sponsored by CAA, Administrator D. W. Rentzel has appointed John H. Geisse to head up the promotion of the revolutionary gear and the single landing strip airports made possible by it. Rentzel commented, "It has not been our purpose to wait until all airplanes are equipped with this gear and then begin to build airports to suit. Instead we have begun to encourage communities to work out their master plans for airports on the basis of cross wind landings, and thus to encourage and hasten the adoption of this device which the CAA has proved feasible, safe and valuable."

Geisse was in charge of the cross-wind landing gear development program at its outset and will now work with component and aircraft manufacturers, private and commercial aircraft operators and communities to promote the maximum benefits from the use of this feature.

Use of the cross wind landing gear will reduce the required take-off run of a two-plane airplane by as much as 24% when cross winds range between 11.4 to 19.3 mph. The tests covering the effect of cross winds on airplanes equipped with this type gear were made by NACA at the request of CAA. The degree of reduction in take-off run varied from 22% for a 50 mph take-off speed to 24% at 40 mph.

Windsor Airport Preferred

Development of an international airport at Windsor, Canada, to serve downtown Detroit, is being urged by the Air Transport Association, which is seeking to discourage CAA from the proposed development of the Wayne County Airport at a cost of $10,000,000.

The airlines already have an investment of nearly a million dollars at Willow Run Airport which is only 10 minutes farther from the heart of the city than the Wayne County field, and says they would prefer to stay at Willow Run unless they could get a field much closer to the city. The proposed Windsor site is about five minutes from downtown Detroit, as compared to 40 to 45 minutes for the county airport site.

Airport Briefs

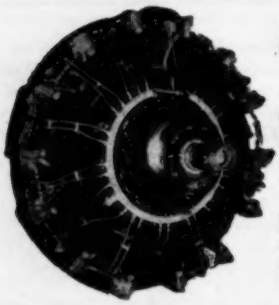
CAA stirred up a mild tempest in late December by issuing an order banning segregation of the races at **Washington National Airport**, which is on Federal property but is located in Jim Crow state of Virginia. Administrator Rentzel said he had ample statutory authority to issue the regulation, but operators of the airport restaurant facilities refused to go along with the order. They later bowed to a Federal court ruling in favor of CAA and non-segregation . . . CAA Airport Specialist **Francis J. Rhody** is in Ceylon making a survey of possibilities of developing Ratmalan airport into an international air terminal. Ceylonese govt. is footing the bill.

Port of New York Authority officials are doing their utmost to head off any legislation in 1949 Legislature which would remove or modify their claimed immunity to suit. They've told Gov. Dewey that after their present row with eight airlines has been settled they will not object to legislation permitting them to be sued. A suit is now pending to compel them to live up to terms of contracts the airlines signed for use of N. Y. International Airport . . . Want to know how large an airport your community can be expected to support? Then read the study, **"Economic Character of Communities,"** first in a series of eight issued by CAA and dealing with the demand for airports. It's a giveaway item.

Functional "specs" for the manufacture of the **slope-line approach light system** were due to be out this week. First installation will be at Idlewild and second probably at Washington National. . . . The active interest Nevada's Senator Pat McCarran has taken in aviation legislation in Washington was recognized with the dedication of the new Clark County airport six miles south of Las Vegas as **McCarran Field.**

Annual sessions of the **Airport Division** of the American Roadbuilders Association will be held in Washington on Feb. 8, during the three-day meeting of the ARBA. . . May 2-3-4 are the dates for the annual meeting of the **Airport Operators Council** in Denver. Many controversial topics will be discussed, some in sessions limited to AOC members, others in sessions to which industry representatives will be invited.

New Orleans taxpayers are holding their breaths in anticipation as an oil drilling firm prepares to sink a 10,000-ft. test well on the **Moisant International Airport** tract, adjoining the airport proper. City has leased 708 acres of the tract for oil development and stands to get one-eighth of all oil produced if a gusher comes through.



R1830-92

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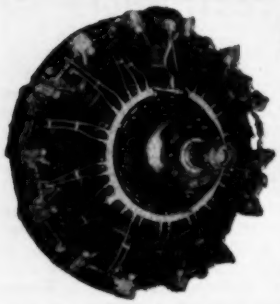

R985-AN-1, AN-3

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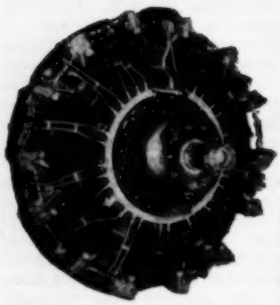

R1830-43-65

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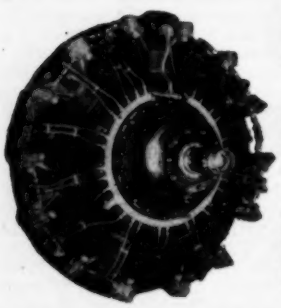
MAJOR OVERHAUL (military) first run (average total time 300:00 hours) with zero time since conversion to R1830-92 specification by recognized agency, block tested C.A.A. Form 337, warranted; each $2000.00



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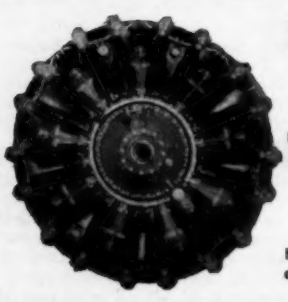

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Boeings — 247Ds —
Stinson — SR-10Es — Douglas C-54Bs with E conversion — Consolidated B-24s, LB-30s — Lockheed P-38s

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$1,000,000 WAR ASSET INVENTORY NEW C-47, DC-3, C-54 SPARES. WRITE FOR CATALOG. Other spares for No. American AT-6; AT-16, B-25, C-46, PBY; Lockheeds (all series); PT-26.

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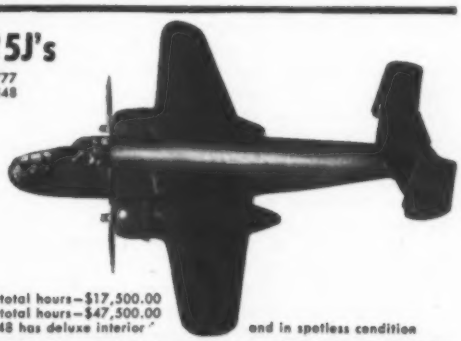

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200 HP Rangers. Complete stock of Air Frame and Engine spares
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Prices: $750.00 to $2000.00

Problem Shipments

Airline cargo departments like the way air cargo is catching on with the shipping public, but they fervently hope that shippers will learn more about the relatively new techniques of packaging for shipment by air before the air freight volume gets much larger.

For while in general air transportation invites lighter packaging than rail or motor truck shipping, this very fact leads to over-optimism and inadequate packaging of air cargo. That spells trouble unless all who have a hand in the loading, unloading, storage and movement of the shipments are unusually alert and careful.

Rule 2.2 of the airlines' Official Rules Tariff No. 1 says that "(a) Shipments must be so prepared or packed as to insure safe transportation with ordinary care and handling." There's lots of leeway in that provision, and some shippers have taken advantage of it. Some manufacturers of pinball machines, for example, insist on shipping these machines by air uncrated, with the result that there is frequent breakage of the glass tops, despite precautions to prevent it.

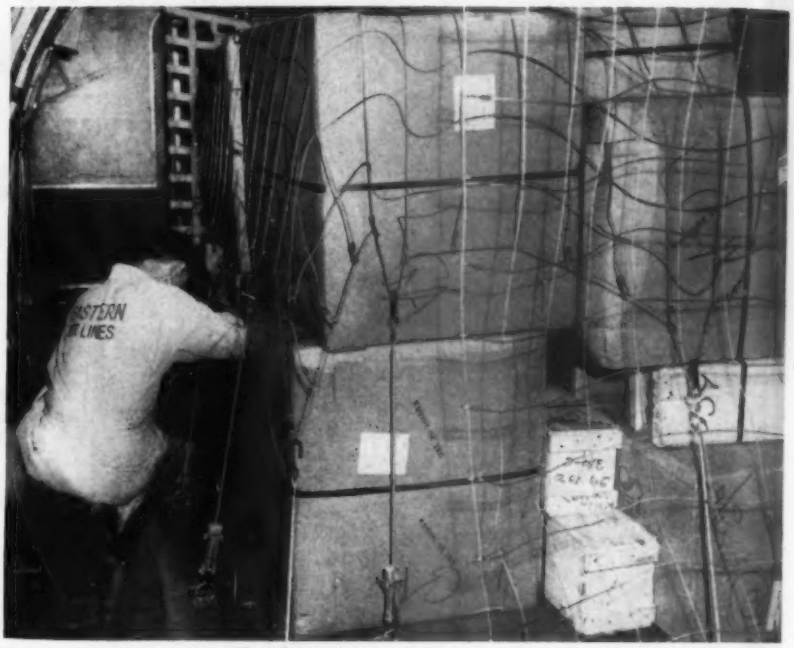
Loose Nuts & Bolts. Automotive cuttings and stampings, which account for a large volume of air cargo shipments out of the Detroit area, are also a source of trouble to the airlines because they are packed in burlap bags which are ripped to shreds by the jagged edges on the stampings, even under normal handling. And so far manufacturers have been unwilling to change their packaging methods.

Nuts and bolts are another air cargo headache. These are usually packed in kegs, each keg weighing about 400 pounds when full. The top slats on the kegs can't always stand the strains to which they are subjected, and consequently more than one cargo ramp has had hundreds of loose nuts and bolts scattered all over it.

On the other hand, some shippers are most cooperative in trying to package to meet airline needs. One large department store in Chicago, at United Air Lines' suggestion, began packaging in small cartons when large ones turned out to be too difficult to handle. The cargo handlers were spared a lot of time and effort and packages now reach their destination in better condition.

If not understaffed or pressed for time, most airline freight departments will re-pack poorly packaged cargo to forestall trouble. Then they notify the consignor of the condition of his package when delivered to them, and make diplomatic suggestions designed to educate him in the proper packaging of air shipments.

Not long ago a bulky wooden box containing four immense machine gears and weighing 700 pounds was turned over to Peruvian International Airways in New York. With the shipper's permission, PIA's cargo department broke open the box, wrapped the gears in burlap and loaded them on the plane. The shipper saved 100 pounds of deadweight packaging, and the airline saved useful cargo space in the plane. United Air Lines, with the shipper's permission, cut a 487-lb. bale of wool in half in order to get it aboard a cargoliner.



Cargo Tie-Down— The above picture shows just one of several effective tie-down techniques developed by Eastern Air Lines' air cargo department to meet one of the problems posed by the growing volume of air freight shipments.

Capital Airlines ran up against one of the toughest cargo packaging problems of all when the Atomic Energy Commission wanted to ship radioactive isotopes from its plant at Oak Ridge, Tenn., to various parts of the country by air. Capital finally came up with a lead-lined package that would effectively shield all personnel from the radioactive elements, but for a two-ounce shipment of isotopes a 60-pound package is required.

Loading & Storage. A companion problem to that of packaging is that of loading or storage of air cargo, and this is coming in for a lot of attention from airline cargo departments. One line of attack is the development of improved cargo tie-down facilities and methods, in which respect Eastern Air Lines (see illustration) has done a particularly good job. United Air Lines has been the leader in developing another method of speeding cargo loading. This is the palletizing technique, in which bundles and packages are preloaded on a magnesium metal base known as a pallet and loaded aboard the plane as one unit, either with or without a protective metal cage.

Meanwhile, increasing experience in the handling of all kinds of shipments from isotopes and juke boxes to lobsters and chinchillas is teaching airline cargo departments a lot about packaging techniques for air shipments, and they in turn are passing their acquired know-how on to shippers.

Air-Truck Hookup Grows

A coordinated nationwide system of air-motor carrier transportation moved a long step nearer realization last month when Air Cargo, Inc., announced the filing of two supplemental motor truck tariff ratings with the Interstate Commerce Commission for traffic which goes part way by air.

The new tariff ratings were filed by the Middlewest Motor Freight Bureau, agent for 978 motor carriers in 13 midwestern states. Similar tariffs had been filed previously by the Central States Motor Freight Bureau, representing some 850 motor truck lines serving most of the area east of the Mississippi and north of the Ohio River.

The rates apply between all points served by the participating motor carriers, on the one hand, and the city cargo terminals of the points served by the air carriers specified in the tariffs, on the other.

ACI's New Quarters: Air Cargo, Inc., ground service organization for the scheduled cargo-carrying airlines, moved its general offices this month to new and larger quarters in Hangar 12 at Washington National Airport. Its offices formerly were in the Barr Building in Washington.

All of us together give you

As one of United's 828 veteran pilots, I'll vouch for the *experience* that serves you. United has flown 10 million passengers 5 billion passenger miles — over the nation's first coast-to-coast route.

As a stewardess, I speak for "Service in the Mainliner Manner." It's a high standard of courtesy and helpfulness — the same kind of hospitality you'd expect as a guest in a fine home.

We chefs of United are proud of our reputation for preparing "the finest meals aloft." United is the only airline that has its own system-wide flight kitchens, and that means delicious meals, every time.

Hundreds of mechanics like me keep United Mainliners in tiptop shape. And our engineers see to it that United has the finest of equipment, including the world's largest maintenance base.

dependable, comfortable Mainliner service

Dispatcher reporting. It's my job to get flights off *on time*. New planes, efficient ground service, and *realistic* schedules aid dependability. Our expert meteorologists add much to flight planning.

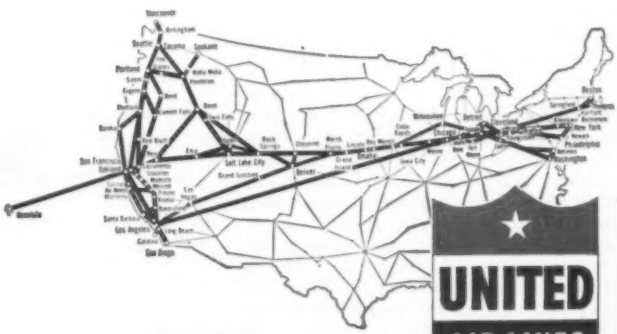
As passenger agent, I serve you at the airport. United serves 80 cities, with frequent flights between them. Speeds as fast as 9 hours, 50 minutes coast to coast on DC-6 Mainliner 300s!

Speed reservations talking! I confirm reservations *immediately*, for *any* flight on *any* date, over our coast-to-coast, border-to-border Main Line Airway that reaches westward to Hawaii as well.

As a traffic and sales manager, I help plan efficient, economical service. No premium fares. Basic fares as low as those of any scheduled transcontinental airline. Also 5% discount on round trips.

THESE are just a few of the 10,859 people who team up to make your Mainliner flight so enjoyable, dependable, and inexpensive. There are many more, all way above average in intelligence, skill, and devotion to duty. The quality of their work and the efficient way they work *together* are what make every United flight such a great value!

YOUR BEST DOLLAR BUY IS WHEN YOU FLY UNITED



UNITED AIR LINES

ROUTE OF THE MAINLINERS

For reservations, call United or an authorized travel agent.

Low-Fare Coach Services Pushed by Scheduled Lines

By ERIC BRAMLEY

Another airline started low-fare coach service late last month, and two more announced plans for starting in the near future. Opinion is that others will follow.

Northwest Airlines was running three round trips weekly between Seattle and Anchorage, Alaska, using combination passenger-cargo DC-4's. TWA was planning a service between Kansas City and Los Angeles, and Continental Air Lines from Kansas City to Denver, both with DC-3's. TWA is the first transcontinental airline to propose coach service over part of its route.

Meanwhile, Capital Airlines' New York-Chicago DC-4 coach flights had completed two months of operation with a very satisfactory load factor of 73%. Pan American Airways' New York-San Juan flights were also clicking.

TWA had asked the Civil Aeronautics Board for permission to start its trips on less than the usual 30-day notice. CAB refused, however, and TWA filed a 30-day tariff. Mid-Continent Airlines had also filed a coach fare on short notice, but was refused, and did not refile. MCA had planned a $9.95 one-way DC-3 fare for St. Louis-Kansas City, compared with regular fare of $14.15. Upon being refused, MCA filed a St. Louis-Kansas City round-trip excursion fare of $19.95 with a 15-day return limit, effective Jan. 25. Present round-trip fare is $26.90.

A CAB member explained that the refusal to let the coach rates become effective on less than 30 days' notice had nothing to do with the merits of the service. The proposals, he added, did not have any unusual features which warranted short-term filing, whereas a 30-day filing would give CAB a chance to study them, and give any airline which desired to object a chance to do so.

Coach Pattern. Whether CAB will allow all the coach fare tariffs to become effective remains to be seen. The CAB member indicated that the Board will study each individual proposal to make sure it is coach service, and not regular service disguised as coach service. He did not explain what CAB considers to be the difference between the two types of service. However, airlines which have started or are proposing to start have given the service certain fairly general characteristics: more seats in the planes, no meals, a minimum of cabin service, no advance reservations, and late night departures.

Northwest Airlines filed, and then withdrew, a coach fare tariff of 4c a mile for Twin Cities, Milwaukee, Detroit, Cleveland, Pittsburgh and Washington. Cancellation notice, which came about two weeks after the filing, stated only that NWA was "not prepared at this time to perform the proposed service." Company officials said that the cancellation would stand "for the time being."

NWA was charging $70 one-way for Seattle-Anchorage, compared with regular winter air rates of $92 one-way and $165 round trip. A total of 55 seats are available in the DC-4, and 26 of them can be folded up against the fuselage to make room for cargo as required. There is sandwich and coffee service only, central ventilation instead of individual ventilators, one reading light for each double seat, and only one stewardess. Flights leave Seattle at 2:20 a.m. on Tuesdays, Thursdays and Saturdays, returning from Anchorage the same days at 11 p.m. There are no advance reservations.

TWA plans a $59.50 one-way Kansas City-Los Angeles fare, against regular fare of $92.80, rail coach of $38.60 and rail pullman of $77.30. Stops will be made at Wichita, Amarillo, Albuquerque and Phoenix. The DC-3's will have 24 seats, only coffee will be served (box lunches available for purchase at regular food stops), no reservations, and late evening departures.

TWA said the purpose of the new plan was to acquaint all travelers with the speed and advantages of flight, and to keep planes in operation during the period when a seasonal travel slump occurs. The company has found that DC-3 loads west of Kansas City were off considerably, while rail travel was increasing. Constellation loads were holding up better. There is a wider gap between rail and air fares west of Kansas City than in the east, because the western roads did not raise fares to the level of the eastern roads. By closing this gap, TWA believes it can get some of these rail passengers on to its DC-3's.

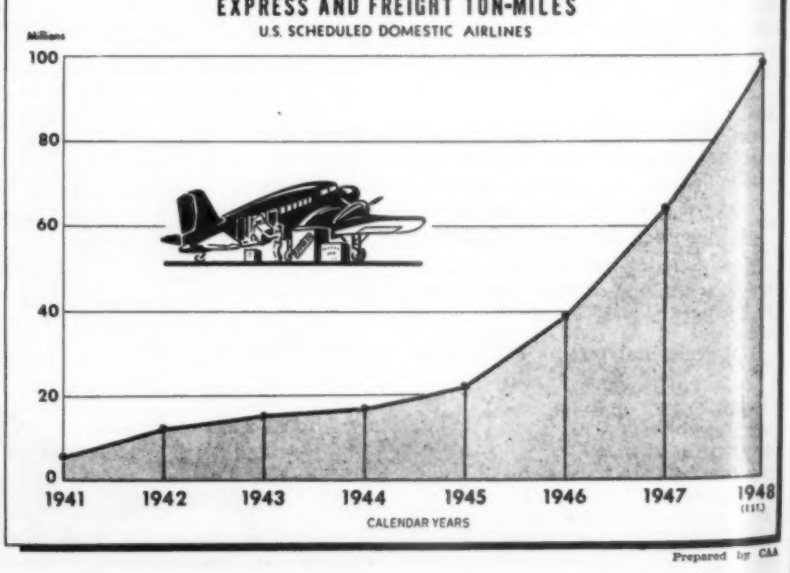
Continental plans to start Feb. 15 with a non-stop DC-3 Denver-Kansas City fare of $20 plus tax, against the regular $31.70, rail coach of $16 and rail pullman of almost $28.

Capital Airlines' officials, although pleased with the 73% load factor, point out that in its two months the service has had the advantage of the heavy travel season—Thanksgiving, Christmas and New Year's. Since the beginning 70 extra sections have been operated, 62 of which were between Dec. 16 and Jan. 2. The officials said that the real test of the service will come in the first three months of this year.

UAL Cargo Sales Drive

With cargo space on its eastbound flights running only about one-third full, United Air Lines this week launched an intensive sales campaign in Los Angeles, San Francisco and Oakland, with the view of building up its eastbound cargo loads.

Kickoff for the campaign came in Los Angeles on Jan. 10, when district traffic personnel got together for a "pep" meeting, which featured: an anlysis of present traffic with emphasis on problems connected with each category; consignee



selling in eastern cities, cooperation with other transportation agencies, and the effective use of company sales aids.

This was followed by a series of meetings with representatives of the Post Office Department, Railway Express Agency, trade and business groups and important shippers.

The same program was to be repeated the week beginning Jan. 17 in San Francisco and Oakland.

Assisting M. P. Bickley, UAL manager of cargo sales, in spearheading the sales campaign are: Ray W. Ireland, vice president-administration; Harold Crary, vice president-traffic and sales; B. B. Gragg, director of traffic and sales; S. R. Newman, regional manager of traffic and sales; and R. L. Mangold, superintendent of air freight sales.

Through special eastbound commodity tariffs and a sustained sales program, United had hopes of building eastbound cargo volume considerably in 1949.

More Visas Eliminated

It's a slow process, but one by one the numerous ribbons of red tape that have long hampered international travel are being snipped.

One of the latest developments is the action of Ecuador in abolishing the requirements of a passport and visa for citizens of Western Hemisphere countries entering Ecuador and substituting a new type tourist card. This card, obtainable from transportation companies as well as Ecuadorian legations and consular offices, will be valid for three months and may be extended another three months upon application.

As part of a project to stimulate tourist travel as a means of helping Europe to balance its trade accounts with the Western Hemisphere, the Economic Cooperation Administration announced last month that passport visas have been abolished by nine of the nations participating in the European recovery program. They are: Norway, Sweden, Denmark, Netherlands, Belgium, Luxembourg, Switzerland, Italy, and the United Kingdom. Travel groups in France, Eire, and Portugal are urging similar action by those countries.

In addition, a total of 126 agreements have been reached in bilateral negotiations between participating European nations in their effort to cut down such tourist-discouraging frontier formalities as good conduct certificates and identity cards; affidavits as to business status, financial solvency and non-political activities; and alien registration cards, bonds and licenses.

Travel Congress: The Inter-American Travel Congress, embracing 21 republics and the Dominion of Canada, will hold its third conference Feb. 15 in Buenos Aires. Major item on the convention agenda will be ways and means of lifting restrictions on travel through simplification of passport and visa procedures.

Over the Counter

By Eric Bramley

Promotion

Smart and effective promotion is **American Airlines'** booklet, "Aironomy Plan." Purpose is to tell businessmen how their organizations can be aided by using air transport for passengers, goods and mail. Good punch line "For air transportation saves not time alone, but *what time costs*" . . . American has also issued a good pamphlet on wintertime air travel, stressing safety and dependability. Interesting to note that company still plays up the "Southern Sunshine Route"—a phrase which brought other airlines up in arms several years ago . . . **Northwest Airlines** is releasing this month a half-hour color and sound motion picture, "Northwest to the Orient," filmed and directed by John M. Cook, NWA advertising director. Company says film will be televised, and that 400 requests for bookings have been received . . . Both **Northwest** and **United Air Lines** are featuring Hawaii in pamphlets and travel publicity. NWA's folder, "Hawaii," goes rather heavily into Stratocruiser promotion, which some people may think premature. United's publicity also features Sun Valley, Idaho . . . **Pan American Airways** is using Convairs and DC-4's for Sunday afternoon sightseeing flights from Miami. Price for a 30-minute ride is $3.45, tax included.

Passenger Service

A plan that should meet with approval is **United Air Lines'** system of assuring that parties of two are seated together on the company's four-engined equipment. Specific seats aren't reserved, but when a ticket is purchased by one or both parties, the ticketing agent issues a small courtesy card. The card is presented to the stewardess, who then shows the two to seats which she has already blocked off. This might come under the why-didn't-somebody-think-of-this-before-department.

Traffic

TWA has announced special tours to Europe. Example is a 15-day all-expense vacation to Switzerland for $825. Extensions of the vacation are available to Italy or Spain. Another tour (24 days, $950) includes Paris, Lyons, Cannes, Florence, Rome, Naples, plus side trips. TWA starts service to Zurich, twice weekly, Jan. 17 . . . Five new Hawaiian tours are being operated this winter by **Albertsen Cruise-Tours** and **Henry Miele Travel Service** in cooperation with **United Air Lines. Albertsen** tours are for either two or three weeks, ranging from $645 to $743 per person, plus tax. **Miele** tours are 11, 16 or 23 days, priced from $434 to $595. All prices are from San Francisco . . . **Colonial Airlines** was quick to challenge **Continental Air Lines'** claim in an advertisement in **Official Airline Guide** that "Continental . . . has flown 290,000,000 passenger-miles during the past 14 years without injury or fatality to a passenger—a safety record unsurpassed by any public carrier." Colonial pointed out that it has "for 19 years maintained a safety record without fatality to a passenger or crew member, and has consistently received awards from the National Safety Council in recognition of this record" . . . **Airlines serving New York** had tough luck with New Year's weekend business. Bad weather canceled or diverted 38 inbound and a like number of outbound flights from LaGuardia . . . **Pan American-Grace Airways** has filed with CAB a reduced sleeper tariff of $45 for Miami-Buenos Aires DC-6 service . . . **Wisconsin Central Airlines** has a new Chicago ticket office located in TWA's office at Wabash and Monroe Sts.

New Services & Equipment

Delta Air Lines has put DC-6's on its route from Atlanta to New Orleans and Dallas . . . **Northwest Airlines** has changed departure times of thrice-weekly service from Seattle-Tacoma and Portland to Honolulu from morning to evening. Company states passengers prefer evening departure and morning arrival. New plan also provides better connections with NWA domestic flights . . . **British Overseas Airways Corp.** has announced Constellation service all the way from New York to Sydney, Australia, three times weekly. Change of planes is necessary in London, with free stopovers provided for passengers. Journey takes less than eight days . . . **Pan American Airways** has put Convairs into service daily from Houston, Corpus Christi and Brownsville to Tampico and Mexico City, thrice weekly Mexico City-Guatemala City.

PAA Tourist Service Has Nonskeds on the Run

By KEITH SAUNDERS

If Pan American Airways was gambling last Sept. 24 when it inaugurated a coach-type DC-4 service between New York and San Juan, Puerto Rico, at a one-way fare of $75, as against the regular DC-4 fare of $133, the gamble has long since paid off.

After increasing the DC-4's seat capacity from 52 to 63 and eliminating bar and meal service and a few other of the so-called "frills" of its regular service, Pan Am figured it would need a 10% increase in its New York-San Juan year-round passenger load factor in order to break even on the $75 fare.

The service started Sept. 24 and for the period ending Sept. 30 the passenger load factor was 67.9% southbound and 97.1% northbound. Load factors on the 31 flights operated in each direction in the month of October were 65.5% southbound and 93.8% northbound, with 1,279 and 1,832 passengers, respectively. November saw the New York-San Juan business pick up a little, with the number of passengers going to 1,368 and the load factor to 72.4%.

Northbound passenger volume, on the other hand, went down a little, to 1,631 passengers and a load factor of 86.3%. Southbound average load factor for the period from Sept. 24 through Dec. 7 was 68%, and the northbound average for the same period was 88.2%. Overall load factor in both directions averaged 78.3%.

Gain of 20%. Instead of the 10% load factor increase it needed to break even at the sharply reduced fare on the coach-type service, Pan American got a gain of nearly 20%. It's not difficult to understand why.

The writer flew to San Juan last month on the coach-type service, and the main thing about the flight that seemed much different from the regular $133 DC-4 service was the fact that no meal was served.

The plane was a standard DC-4, just like any other PAA DC-4 except that the galley and coat rack had been eliminated to make room for 11 additional seats. Two stewardesses looked after the comfort of the passengers, the same as on any other flight, except that with more passengers aboard their services sometimes were spread a little thin.

The seating arrangement on the "coach" planes is 11 rows of five seats each, two on one side of the aisle and three on the other, with seating space for six additional passengers in the rear compartment, three on each side facing each other, and with seats for two others against the compartment wall just behind the last row of three seats in the main cabin. It is difficult for the passengers occupying these two seats and the six in the aft compartment to make themselves comfortable, but the remaining 55 passengers can relax in upholstered, reclining seats comparable to those on any other flight.

Deluxe Return. Seeking contrast, the writer flew back from San Juan to New York on the daily deluxe Constellation flight. There was a very noticeable difference, for there were only 20 persons on the flight, as opposed to 57 adults and eight infants on the coach flight down. Also, I had a highball during the cocktail hour and an excellent dinner. I was provided with a magazine (I carried my own going down), the flight was two hours faster (6½ hours, as against 8½) and there was more "elbow" room.

It was a grand flight, but, as is already being proved, a dinner, a magazine, and a two-hour time saving is not worth $58 to many travelers.

It is no wonder that the coach-type service is going great. The surprising thing is that Pan Am's other standard-fare daily services between New York and San Juan have been hurt very little by the daily reduced-rate flights, but the company's traffic sheets show that such is the case.

If the coach service is not hurting PAA's other New York-San Juan flights, where is the traffic coming from? From reports gathered around the airport at San Juan and at other travel centers, it is clear that PAA's $75 service is drawing most of its travelers from among those Puerto Ricans who formerly were patronizing cut-rate, nonscheduled operators who thought nothing of packing 65 people in a C-47 or 85 in a DC-4.

These operators, it was learned, have run far fewer flights out of San Juan since Pan Am started its coach-type service. One gasoline distributor (and he was not the only one on the field) reported that his sales to the nonskeds fell off nearly 30,000 gallons a month within a few weeks after Pan Am's new service started.

New Nonsked Tactic. So hot has this new competition made things for the nonskeds that they have been driven to all sorts of tactics in order to get business. Latest practice is to effect a tie-in with an employment agency in New York and have the latter collect most of the air fare of $50 or $60 out of the wages of a Puerto Rican after he has been flown to New York and has found a job.

Under this plan, a Puerto Rican with as little as $15 or $20 in his pocket can get to New York, where he probably has a relative who will put him up and where he can soon either get a job or go on the relief rolls. In either event, he'll probably have more money in his pocket than he ever had back on the island.

Pan American doesn't expect to put the nonskeds out of business right away, but by providing a consistently good service, with high standards of safety and reliability, it expects gradually to draw all but the most uneconomic segments of the business away from them. It hopes, further, to attract a good many students, teachers, small businessmen and ordinary tourists who should be interested in and able to afford a round-trip to Puerto Rico for $150.

Meanwhile, company officials feel certain they are showing a profit on the coach-type service, although they think a year's experience will be needed to prove anything about the economics of the service.

Intrastate Cut-Rater

Tariffs charged by the certificated airlines operating between Los Angeles and San Francisco run to $21.05 plus tax. Eyeing the passenger potential on this route, a non-certificated carrier—California Central Airlines—filed with the California Public Utilities Commission a tariff of $9.99 plus tax for an intrastate air service over the same route.

California Central's president, Col. C. C. Sherman, said the company hoped to start service over the route early in January, starting with three round-trips daily and using 28-passenger DC-3's. In addition, he said, the company plans to issue 30-ticket commutation books at the regular $9.99 rate per ticket but minus the 15% Federal transportation tax. He did not say how this latter would be accomplished, in view of the fact that the Bureau of Internal Revenue has refused the certificated airlines permission to do the same thing.

Unlike the $99 transcontinental nonskeds, CCA will not depend upon ticket agencies to generate traffic for it but will handle ticket sales direct and pay no commission.

The DC-3's to be used in the service will be acquired from Airline Transport Carriers, one of the larger of the nonscheduled lines, of which Col. Sherman also is president.

Airline Row: Several cities have what is known as an "Airline Row," but there probably are few places to match the 700 block of Common Street in New Orleans. With the recent opening of Mid-Continent Airlines' new ticket office at 724 Common Street, the number of airline offices in the block was boosted to six, including Capital, National, Eastern, and Pan American.

Are Small Operators Making Most of RFC Financing?

By GERARD B. DOBBEN

The fixed-base operator, in need of special financing, may be overlooking a good bet in the Reconstruction Finance Corp., especially in connection with his long-range financial needs.

One reason undoubtedly is that the average small business man thinks in terms of RFC as a lender of big money. He is not aware of the fact that 80% of RFC's loans are under $25,000.

RFC officials have estimated that from the period February, 1946 to February, 1948, it had authorized 12 loans to fixed-base operators, aggregating $328,000 in Federal funds.

During approximately the same period, another 32 loans were made affecting flight schools and other businesses involving aeronautical activities. The 32 loans aggregated a total of $1,000,000, $700,000 of which was supplied by RFC with local banks participating in the balance.

Requirements. In the belief that this method of financing may solve the financial needs of many operators, general qualifications for such loans are outlined below:

RFC attempts to fill a gap between commercial institutions such as banks which deal largely in 90 day loans and the big financial houses that normally deal in equity financing which is almost non-existent today. RFC loans may be made up to 10 years. The interest rate is 4%.

To qualify, the business enterprise must be privately owned, either by an individual, corporation or a partnership. The business must be operated for profit. Before RFC will entertain an application, the interested parties must have made an honest effort to get the money from private sources and demonstrate that it is not available from such sources.

If the fixed-base operator, or any business man, qualifies, there must be a pledge or collateral which so secures the loan as to reasonably assure repayment. Collateral must be of a tangible nature such as land, buildings, equipment, assignment of receivables or pledge of inventory if properly warehoused.

RFC officials also pointed out that veterans, under the GI Bill of Rights, have certain loan credits which may be used as collateral in the case of RFC loans.

There are 31 regional RFC offices and applications for loans must be made at the office which serves the area in which the applicant's business is located. Regional offices have authority to approve loans up to and including $100,000. No loan is disapproved by the Regional Office. If it cannot be approved, it is sent to Washington where final approval or disapproval rests with the Board of Directors.

The preliminary application blank consists of only two pages. Blanks may be obtained from any RFC office. Any bank, Chamber of Commerce or Post Office will be able to furnish the location of the nearest regional office.

Seeking Lightplane Record

Captain W. P. (Bill) Odom has been awaiting favorable weather conditions to start his 5010 mile flight from Honolulu to New York in an attempt to break the world's international distance record for light planes. Flying in a production model Beech Bonanza, fitted with cabin and wing tip fuel tanks to bring total fuel capacity up to 260 gallons, Odom hoped to make the flight in 32 to 34 hours but would have sufficient fuel reserve for an additional six hours in the air. An additional 12 gallons of oil will also be carried bringing the total to 58 quarts.

The Bonanza is powered by a 165 hp. engine and normally cruises around 170 miles per hour but the projected flight plan anticipates a speed of 150 miles per hour. Odom expects to cruise at 14,000 feet over some portions of the route and will have oxygen on board to use as necessary. On Dec. 20, Odom flew the plane from Wichita to San Francisco non-stop, a distance of 1200 miles. The airplane was then shipped to Honolulu in a Pan American plane.

If successful, Odom's flight will more than double the existing record of 2,061.703 miles established in 1937 by two Russian flyers, A. Goussarov and V. Glebov, in a Moskalev airplane flying from Moscow to Kransnoyarsk.

Briefing the News

The new year starts out with **Piper's Family Cruiser** having the lowest price tag (just under $4,000) in the 4-place field . . . A total of 62 **personal airplanes** were exported in November as against 139 same month of 1947 . . . **Atlantic Aviation** has completed its switch from Wilmington's DuPont Airport to New Castle County Airport and there's a new phone number, too: New Castle 2619 or 3182. Incidentally, Atlantic's new base there has been approved for twin-engine and instrument rating . . . There's a new book out called **"Private Pilot Training"** published at $4.00 per copy by Aviation Sales Corp., 813 N. Highland Ave., Los Angeles 38, Calif. We haven't seen it, but it's made up of 384 pages of practical text material and goes deeply into civil air regulations.

Oklahoma City's Chamber of Commerce, a live-wire outfit when it comes to aviation, is going to stage a second-annual air show April 22-24 and of course, Steady Acker, of the famed pre-war Birmingham shows, is going to run it again . . . Looks as though the **Stinson Voyager** will top all personal aircraft sales for 1948. As of the end of November it was running 801 over the next highest, the **Cessna 170** with 684. The **Beech Bonanza** was a close third with 658 shipments . . . **Grand Central Airport Co.** got an excellent orchid recently from the **Glendale News Press** for flying 100 C-46's out of Walnut Ridge storage, overhauling and modifying them at Grand Central, and flying them to China without loss of a single plane. All on schedule, too.

Long-Range Bonanza —Bill Odom is shown with the Beech Bonanza in which he hopes to capture the world's light plane distance record. Note the wing tip fuel tank which combines with a similar left wing tank and an extra cabin tank to bring total fuel on board to 260 gallons—enough for nearly 40 hours in the air. This is a production Beechcraft.

U. S. Domestic Airline Traffic for October

Airlines	Revenue Passengers	Revenue Passenger Miles	Available Seat Miles	Passenger Load Factor	Mail Ton Miles	Express Ton Miles	Freight Ton Miles	Total Ton Miles Rev. Traffic	Available Ton Miles Flown	% Available Ton Miles Used	Revenue Plane-Miles	Scheduled Miles	% Scheduled Miles Completed
				%									
American	290,056	135,014,000	201,967,000	66.85	772,485	524,473	2,378,895	16,338,267	28,420,167	57.49	5,020,429	4,853,735	98.89
Braniff	53,614	17,492,000	32,457,000	53.89	80,950	71,460	145,162	1,970,164	3,997,382	49.28	978,277	971,726	98.82
Capital	96,171	26,697,000	51,125,000	52.22	81,146	164,868	550,410	3,346,712	6,785,752	49.32	1,597,949	1,579,935	96.50
Caribbean	5,481	356,000	907,000	39.25	584	. . . .	1,412	30,650	82,440	37.18	36,079	37,166	96.70
C & S	26,706	9,842,000	17,730,000	55.51	47,317	49,254	48,892	1,089,553	2,304,119	47.29	668,102	665,966	99.10
Colonial	13,579	3,768,000	6,551,000	57.52	7,064	4,557	8,435	398,829	836,831	47.66	313,297	313,007	98.85
Continental	14,673	5,527,000	10,519,000	52.54	16,206	8,677	24,935	585,040	1,157,469	50.54	502,666	479,880	99.92
Delta	44,327	15,368,000	28,338,000	54.23	73,728	76,915	150,191	1,775,762	3,914,930	45.36	1,078,346	1,085,908	99.10
Eastern	176,539	73,988,000	124,066,000	59.64	403,568	360,635	542,882	8,617,014	18,943,964	45.49	4,027,051	4,098,844	99.45
Hawaiian	24,835	3,319,000	5,100,000	65.08	4,300	10,885	46,112	342,081	589,566	58.02	234,159	197,415	99.62
Inland	6,416	2,328,000	3,847,000	60.51	9,002	5,515	8,367	245,689	406,125	60.50	192,918	194,210	98.44
MCA	29,137	8,604,000	14,884,000	57.81	27,945	18,604	26,283	897,740	1,552,030	57.84	732,392	727,818	99.70
National	16,184	8,442,000	23,544,000	35.86	28,447	48,354	38,623	977,238	3,254,472	30.03	566,490	587,199	95.94
Northeast	22,995	4,356,000	8,489,000	51.31	6,731	7,961	14,425	412,724	844,066	48.90	283,933	299,553	93.82
Northwest	51,990	26,553,000	46,899,000	56.62	178,010	153,779	339,622	3,222,037	6,308,524	51.07	1,423,367	1,418,442	99.36
TWA	116,527	71,719,000	139,838,000	51.29	683,878	586,422	1,055,397	9,218,610	17,642,666	52.25	4,969,450	4,892,971	97.59
United	188,940	111,252,000	171,524,000	64.86	867,615	684,804	1,878,062	14,100,666	25,303,819	55.73	5,063,709	5,048,371	97.85
Western	23,533	8,971,000	17,386,000	51.60	37,260	28,393	52,135	976,146	2,145,106	45.51	537,171	528,485	97.23
TOTALS	1,200,903	533,596,000	905,171,000	58.94	3,326,236	2,805,556	7,310,240	64,544,922	124,490,028	51.84	28,225,745	27,980,631	98.33

U. S. International Airline Traffic for October

Airlines	Revenue Passengers	Revenue Passenger Miles	Available Seat Miles	Passenger Load Factor	U. S. Mail Ton Miles	Foreign Mail Ton Miles	Express Ton Miles	Freight Ton Miles	Total Ton Miles Rev Traffic	Available Ton Miles Flown	% Available Ton Miles Used	Revenue Plane-Miles	Scheduled Miles	% Scheduled Miles Completed
				%										
American	6,305	4,198,000	8,560,000	49.04	7,575	1,778	. . . .	103,397	556,156	1,209,698	45.97	198,204	229,126	85.66
Amer. O'Seas	9,942	22,283,000	29,461,000	75.64	94,966*	26,177	291,550	. . . .	2,799,640	4,031,885	69.44	768,135	585,419	96.55
Braniff	492	841,000	4,131,000	20.36	725	113	. . . .	4,254	86,579	568,468	15.23	81,528	88,322	92.31
C & S	1,633	1,631,000	5,223,000	31.23	954*	87	. . . .	17,355	187,409	466,610	40.16	104,466	104,467	99.99
Colonial	1,231	966,000	2,790,000	34.62	861*	108	. . . .	4,577	111,039	410,601	27.04	63,590	66,682	95.36
Eastern	1,015	1,069,000	3,464,000	30.86	3,044	. . . .	. . . .	43,213	157,202	396,552	39.64	62,400	64,480	96.77
National	2,532	755,000	2,003,000	37.69	857	. . . .	22,803	. . . .	101,286	263,440	38.45	37,862	35,836	95.82
Northwest	2,542	5,517,000	8,821,000	62.55	198,391	19,048	8,444	244,904	1,077,789	1,559,043	69.13	398,237	346,276	98.74
Panagra	7,916	9,091,000	16,113,000	56.42	18,175	33,962	133,900	44,750	1,227,391	2,355,025	52.12	488,623	498,154	94.91
Pan American														
Lat. Amer.	51,562	43,485,000	93,264,000	46.63	199,353	85,814	1,612,035	87,875	6,395,696	12,926,002	49.48	2,593,263	2,631,024	97.13
Atlantic	12,330	31,194,000	41,074,000	75.95	206,224*	50,427	560,803	55,074	4,260,808	6,147,218	69.31	1,219,427	1,122,515	93.42
Pacific	7,137	21,956,000	28,699,000	76.50	363,692	44,197	611,322	. . . .	3,230,032	4,516,411	71.52	1,237,246	1,175,356	99.97
Alaska	2,607	2,730,000	4,762,000	57.33	37,325	. . . .	489,436	. . . .	803,765	1,162,216	69.16	217,579	197,543	98.42
TWA	9,260	27,795,000	48,714,000	57.06	199,995*	86,494	471,179	. . . .	3,834,791	6,483,835	59.14	1,355,272	1,289,200	99.70
United	2,233	5,372,000	6,646,000	80.83	63,547	. . . .	11,218	. . . .	632,033	772,641	81.80	153,940	148,800	100.00
TOTALS	118,737	178,883,000	303,725,000	58.89	1,395,684	348,115	4,212,290	605,399	25,461,616	43,269,645	58.84	8,979,772	8,583,200	97.05

* In addition to mail ton miles the following international parcel post ton miles were listed: American Overseas 21,198; C & S 17; Colonial 100; PAA Atlantic Div. 24,036; TWA 32,927

NOTE: Data in above tabulations were compiled by American Aviation Publications from monthly reports filed by the airlines with the Civil Aeronautics Board. Figures for American Airlines include that carrier's service to Mexico but not to Canada; for Braniff to South America; C & S to Havana; Colonial to Bermuda; Eastern to Puerto Rico; National to Havana; Northwest to Orient, and United to Honolulu. Operations of U.S. carriers into Canada are included in domestic reports to CAB, in accordance with CAB filing procedures.

U. S. International Airline Revenues & Expenses for July-September

Airlines	Total Operating Revenues	Passenger Revenues	U. S. Mail Revenues	Foreign Mail Revenues	Express Revenues	Freight Revenues	Excess Baggage Revenues	Non Scheduled Transport Rev	Total Operating Expenses	Aircraft Operating Expenses	Ground & Indirect Expenses	Net Operating Income
	$	$	$	$	$	$	$	$	$	$	$	$
American	973,212	815,400	16,894	11,366	. . . .	69,780	12,469	. . . .	948,790	502,353	446,437	24,422
Amer. O'Seas	7,694,450	5,499,120	1,129,916	161,179	558,367	. . . .	81,807	232,467	5,884,277	3,023,428	2,860,850	1,810,173
Braniff	523,822	255,631	254,923	635	. . . .	5,440	5,938	. . . .	547,468	285,907	261,561	-23,646
C & S	626,019	318,713	291,307	. . . .	. . . .	10,462	5,486	. . .	527,040	253,239	273,800	98,980
Colonial	364,649	264,061	85,506	. . . .	. . . .	13,660	1,422	. . .	403,474	172,945	230,528	-38,825
Eastern	287,313	257,069	7,200	. . . .	. . . .	19,714	3,329	. . .	262,065	123,303	138,762	25,247
National	218,483	182,580	11,297	. . . .	18,828	. . . .	5,241	536	228,814	93,991	134,823	-10,331
Northwest	3,036,727	1,556,405	1,159,646	102,819	7,166	191,997	33,203	. . . .	2,459,675	1,151,227	1,308,448	577,052
Panagra	3,273,356	2,503,882	271,719	165,881	308,650	. . . .	93,084	144	3,703,373	1,700,647	2,002,726	-430,017
Pan American												
Latin Amer.	16,135,943	9,733,441	3,205,084*	438,661	1,955,326	. . . .	306,608	139,801	15,073,630	6,109,267	8,964,363	1,062,313
Atlantic	11,430,622	8,064,200	1,734,532*	291,863	706,671	. . . .	197,727	381,515	10,444,522	5,604,751	4,889,771	936,100
Pacific	8,374,799	4,929,881	2,538,288*	133,417	633,259	. . . .	84,694	9,247	7,982,513	4,217,537	3,764,976	392,286
Alaska	1,416,981	843,980	319,006*	. . . .	240,572	. . . .	5,109	8,456	1,330,448	613,399	717,049	86,533
TWA	10,710,314	7,532,060	1,620,918	523,732	569,524	. . . .	217,805	185,916	10,336,171	5,149,839	5,186,332	374,143
United	1,241,355	1,086,418	77,529	. . . .	24,198	. . . .	18,394	16,760	905,450	489,683	415,767	335,905
TOTALS	66,308,045	43,842,843	12,723,765	1,829,553	5,022,561	311,053	1,072,316	974,882	61,087,710	29,491,516	31,596,193	5,220,335

* Includes company's estimate of amount which should be received in accordance with the terms of the Civil Aeronautics Act when permanent rates are established. Estimate exceeds temporary rates in effect and permanent rates under review as follows: Latin American Div. $9,750,308; Atlantic Div. $89,709; Pacific Div. $-1,057,727; Alaska Div. $-4,144

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Classified Advertising

The rates for advertising in this section are as follows: "Help Wanted," "Positions Wanted," "Aircraft Wanted or For Sale," and all other classifications $1.00 a line, minimum charge $4.00. Estimate bold face heads 30 letters and spaces per line; light body face 40 per line; box numbers add two lines. Terms, cash with order. Forms close 20 days preceding publication date. Rates for display advertisements upon request. Address all correspondence to Classified Advertising Department, AMERICAN AVIATION PUBLICATIONS, 1025 Vermont Avenue, NW., Washington 5, D. C.

FOR SALE

NEW BINOCULARS 7x50 (coated) $69.50 plus tax. Taylor Barometers (brass) $21.00; Surplus Sextants $12.50 up. Aerial (F-8 Navy) Camera $139.; Astro Compass $7.50; Bendix D-12 (new type) Compass $12.95; Flight Engineer (Zweng) $4.00; Flight Dispatcher $4.00. (Free catalog)—Dealers wanted. Pan American Navigation Service, 12021-12 Ventura Blvd., N. Hollywood, Calif.

HELP WANTED

Design Engineers with Experience in Aircraft Fuel & Hydraulic Systems. Good Opportunity for Advancement with Small Company. Salary within Accordance with Training & Experience. Give Full Information in Letter to General Manager, Aero Supply Mfg. Co., Inc., Corry, Penna.

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CAA Statistical Handbook: A new and revised edition of the CAA Statistical Handbook of Civil Aviation, official government publication on aviation statistics, is now available from the U. S. Government Printing Office in Washington for 50c per copy. Third in the Handbook series, the new edition represents expansions in several departments and statistical changes in others.

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WINGS OF YESTERDAY

25 Years Ago

The Dept. of Commerce and the Interstate Commerce Committees of the House and Senate were working out the details of a bill for the regulation of interstate flying and aircraft.

10 Years Ago

(In AMERICAN AVIATION)

Civil Aeronautics Authority heard its first air mail rate case, with Mid-Continent Airlines asking increase from 33⅓c to 40c per mile base rate.

•

Flight testing of the 33-passenger Boeing 307 Stratoliner began with Test Pilot Eddie Allen putting the ship through its first paces. Take-off was reported at 10 seconds.

•

With addition of 1,433 route miles in year's time, Eastern Air Lines moved into third place among U. S. airlines, behind American and United. EAL was operating 3,724 route miles.

LETTERS

A Raw Deal

To the Editor:

We were very pleased to note your editorial "Justice Without Charity" which appeared in the Jan. 1 issue.

Mr. Marthens is an AOPA member and we have been working on this case feeling, as you do, that a very raw deal has been given to this individual.

Our investigation apparently reveals that Marthens was denied a request for postponement of the original hearing and that he was requested to "cut short" his defense presentation during the hearing to accommodate the CAB examiner who desired to leave for home, but who had given a full period of time to the CAA to present their evidence against Marthens.

J. B. HARTRANFT, JR.,
General Manager,
Aircraft Owners and Pilots Assn.

Credit for Tony Janus

To the Editor:

I have just read a very interesting article in your Dec. 15, 1948 issue of *American Aviation* entitled "Air Travel—1919 Version."

This leaves the impression that Aero Limited was the first to have a passenger schedule. I believe the records will show that Tony Janus, flying Benoist Flying Boats, operated a schedule from Tampa to St. Petersburg, Fla. during the winter of 1913-14. The flying boats were built by Tommy Benoist, who was killed in a street car accident at Sandusky, O., I believe sometime prior to 1920.

Janus went to Russia to teach the Russians to fly and was killed in 1915 in an airplane accident. The Benoist Flying Boat was powered by a Roberts 2 cycle engine and was capable of carrying three persons.

EARL L. SMITH,
CAB Air Safety Investigator,
Wold-Chamberlain Field,
Minneapolis, Minn.

(Editor's Note: Thanks to Reader Smith for the reminder about Tony Janus. Tampa and St. Petersburg have long pushed the claims about Janus and his early flying and newspaper stories of those early days provide ample support. For some reason the Janus pioneering has never received much national recognition.)

Too Slow for 'Connie'

To the Editor:

In the last sentence of the article "Air Travel—1919 Version" on Page 18 of your Dec. 15 issue, the statement is made that "Today it's a five-hour hop in a Connie," meaning the distance from New York to Miami.

Our Constellation schedules have been and are now only four hours from New York to Miami.

RICHARD H. AIME,
Eastern Air Lines,
New York City.

(Editor's Note: The author of that statement is now spending one hour each day reading the EAL pages in "Official Airline Guide.")

Bucking the Trend

To the Editor:

The year-end statistics show Florida Airways handled 1,667,000 revenue passenger miles in 1948 vs. 616,000 in 1947, an increase of 78.3%.

This looked so good we took the monthly summaries from CAB reports published in your book to make comparisons with the change of trunks and all other feeders.

Your records were available to us for only the first nine months of this year, so we made our comparison on that basis.

The results showed the total revenue passenger miles for the trunks had dropped 4.4% for the first nine months of 1948 vs. 1947, while the total for feeders had increased 85.5% and Florida Airways had increased 103.2% for the same period.

The feeders, and Florida Airways in particular, have been "bucking the trend."

OSCAR BERGSTROM
V. P. and General Traffic Manager
Florida Airways

CAB & Bootleggers

To the Editor:

I was tempted to write this to CAB Chairman O'Connell, but was very much afraid I would be accused of nosiness. I pass it on to you for whatever it may be worth. The Board's recently published interpretation to 292.1 doesn't concern our company, because we will be either on the certificated side of the fence, or will desert the pasture completely.

However, we did a little mathematics on the calculating machine and find that reckoning minutes, hours, and days, there are over 17 trillion possible combinations arguable as to regularity or irregularity. How will the CAB ever "hole the fox" until they go after the transport aircraft itself—not the operator, viz. a regulation something like this: "No aircraft shall be operated for hire having a gross weight of more than 9,000 lbs." (As a matter of fact, an outfit that can't afford more than one DC-3 can't afford the proper maintenance specialization that keeps this airplane airworthy, except possibly in name.)

At any rate, the net effect of this interpretation if promulgated as a regulation will be to break up all "5-plane airlines" into five 1-plane airlines.

This rigmarole about "if you participate in a travel agency operation and contribute to the pattern, you are a violator" seems to me legally untenable. They can't get the travel agent, because they have no jurisdiction—he is not an air carrier. If 365 one-plane carriers each flew a flight a year, I don't see how they are going to get them either.

My sympathies are with these "coach operators." I think they are entitled to recognition for pioneering; but until and unless they get it, I don't believe in bootleggers. Why doesn't the CAB meet the issue squarely?

NAME WITHHELD

Reason for Shortage

To the Editor:

In case you are interested in part of the cause of the shortage of technicians (AMERICAN AVIATION, Nov. 15) in the air industry, especially in the scheduled lines, just compare salaries with any other industry that requires similar training.

Just for example take my own case. I graduated from one of the best radio schools in the South in June of 1946 with a first class Federal license and went to work for American Airlines at $140 per month with a promise of $175 when I finished procedure school. Six months later I got it. Two years later I was only making $235 and as you well know, you can't live very well on that these days.

I am now employed by an engineering firm in the oil industry with a guaranteed salary of $375 whether I work or not. I am not using any of my former training and would be very interested in some of these $7000 jobs you speak of.

N. J. SHEFFIELD
Midland, Tex.

BOOKS

THE ANALYTICAL DEVELOPMENT OF CURVES AND STREAMLINE SHAPES, by Harry H. Haase. Published by Deemar Company, 125 Avon Place, Amityville, Long Island, New York. 151 pages. Illustrated.

This book serves a highly specialized field. It provides a means of developing curves by algebraic equations. This field of endeavor is becoming increasingly important with the high speeds now being attained in aircraft but is also important in ship building, automobile design, railroad layout, etc. In addition to making it possible to design more accurate curves, this work provides the basis on which to compute areas, volumes, centers of gravity, etc. of the curved areas.

Value of this approach to developing curves and streamline shapes is indicated by fact that the method is used exclusively at Republic Aviation Corp.

PRINCIPLES OF RADAR, by Denis Taylor & C. H. Westcott. Published by the MacMillan Co., 60 5th Ave., New York, for Cambridge University Press. 137 pp., illustrated. $3.50.

This is one of a series titled Modern Radio Technique, edited by J. A. Ratcliffe. Certain assumptions are used in formulating the text which require a previous knowledge of radio practice, electromagnetic theory and calculus. The book devotes eight chapters to principles of radar grouped in sections dealing with generation and reception of pulse modulated signals, factors affecting performance of radar equipment, radar ranging, determination of azimuth, elevation and combination of both, unwanted echoes and electrical characteristics of typical radar equipments. Only minor reference is given to systems requiring responder equipment.

AIRBORNE

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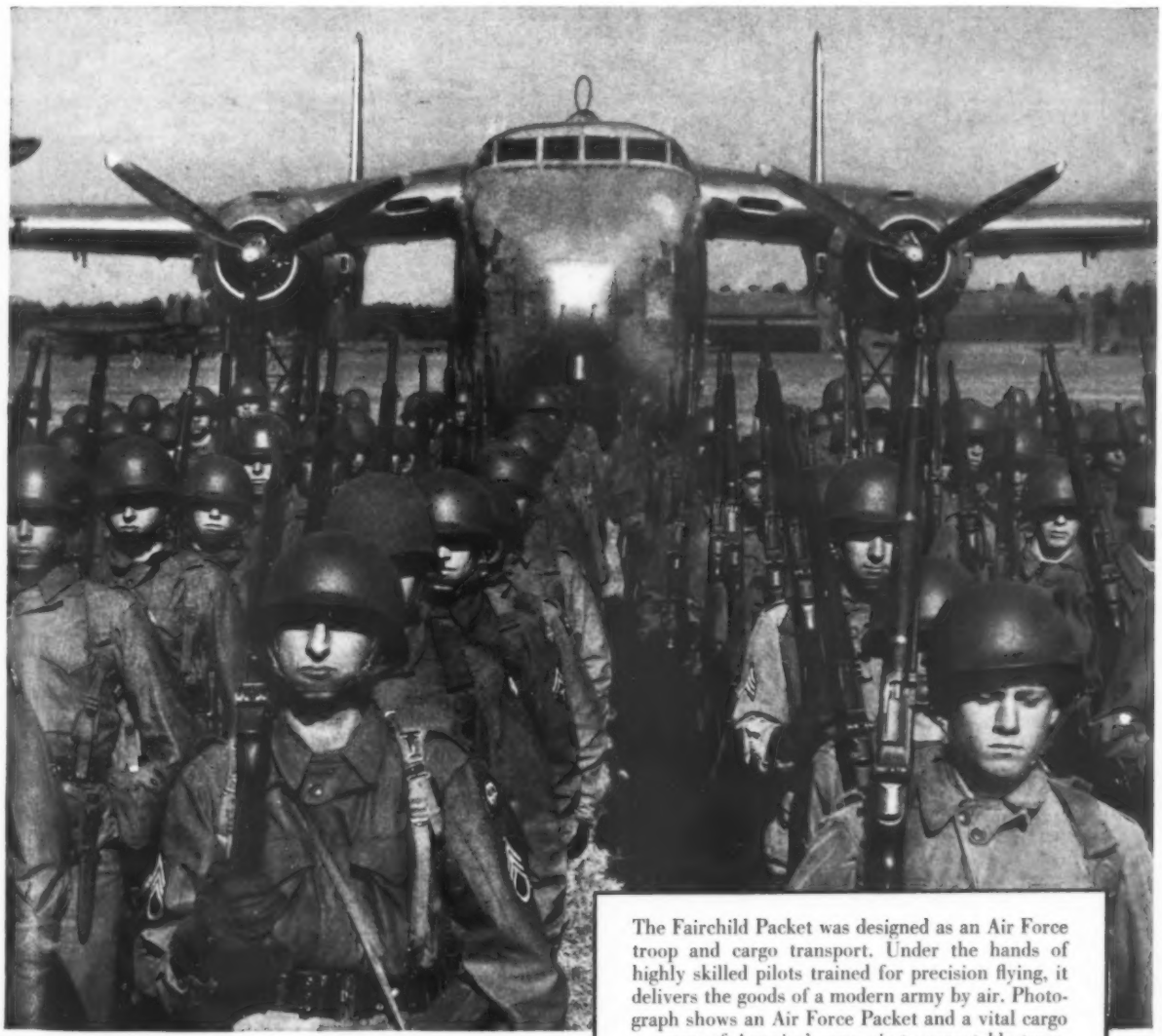

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